The Builder.

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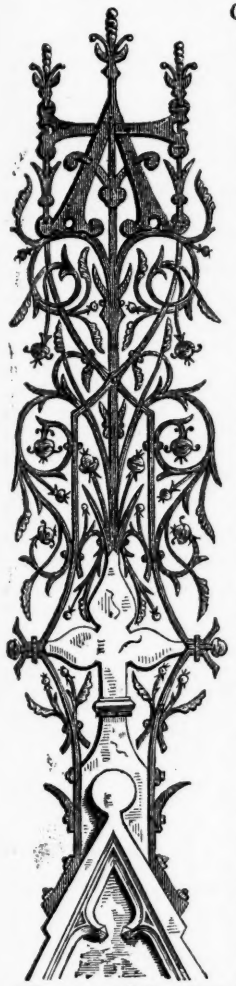
The Holborn Valley Competition.



CTING, as it would seem, without full knowledge of their position, the Corporation rushed into the offer of premiums for plans for raising Holborn Valley, and making such improvements adjacent as would conduce to the convenience of the public, and have thus given a large number of architects and engineers, as well as themselves, a great deal of unnecessary and fruitless trouble. The loss, by death, of their late solicitor and of their esteemed architect, who had the whole matter at their fingers' ends, as well as of two other officers, may to some extent account for this. Had these gentlemen been in their places the Corporation would doubtless have been reminded that the terms of the existing Act of Parliament, granting the reversion of the 4d. coal-duty for the purposes of the improvement, seem to enforce the *destruction altogether of the present hills.* Certain it is that the realization of this fact, or at any rate of this belief, at once led to the throwing out of 96 of the 105 designs sent in, leaving only nine for the real consideration of the committee, and some of these were so manifestly crude that they were at once put on one side. The authors of the other ninety-six designs, some of which are most thoughtful and artist-like projects, had no standing whatever, and might have saved their pains and money had they been properly instructed: many of them, indeed, might have done so by a careful reading of the advertisement offering the premiums; for this distinctly asks for "designs with descriptions, plans, sections, and estimates, for '*raising Holborn Valley,' and* making such alterations," &c. &c.

The field for selection for the premiums became, therefore, very small; and we may as well say, although a little out of the order of relation, that the committee recommend the plan by Mr. R. Bell for the first premium, 250*l.*; and that of Mr. T. C. Sorby for the second, 150*l.*; a plan by Mr. Marrable standing third. It is to be hoped that some additional premiums will be awarded to the most meritorious designs in other classes.

Let us now retrograde a little, and give some few particulars of the proceedings and of some of the designs sent in. As we mentioned in our last, the committee called to their assistance Mr. W. Haywood, who withdrew a design he had himself submitted, and they set aside those said not to comply with the several conditions stated in the advertisement, leaving thirty-eight for future consideration. These were sorted into nine classes, and for six days have been open for the examination of the public in the Guildhall. They were under the following heads, and were chiefly illustrated by the competitors whose names we attach.

Class 1.—Nine designs for constructing complete viaducts, or high-level roadways, upon the line of Holborn-hill and Skinner-street, involving the entire removal of the present surface and the property on both sides. T. C. Sorby, R. Bell, F. Marrable, L. H. Isaacs, R. Kerr, J. W. Papworth, E. Blatchley, F. G. Mullholland, and J. Scott Tucker.

Class 2.—Four designs for viaducts to be constructed upon the north side only, the carriageways and the property upon the south side of Holborn-hill and Skinner-street being untouched. F. Marrable.

Class 3.—Four designs for viaducts upon the south side only, the roadway and property upon the north side being untouched. J. Turner, S. Heming, "Utilitas" (model).

Class 4.—Three designs for central viaducts, upon the lines of Holborn and Skinner-street, some leaving parts of existing footways and roadways. James Thomson. (Cleverly set forth, but a mistake.)

Class 5.—One design for viaducts on both sides of the present streets, leaving the centre of the roads as at present, to communicate with the lower level. "Utilitas."

Class 6.—One design for viaduct occupying the whole of Skinner-street and south side of Holborn only.

Class 7.—Eight designs for high-level streets or viaducts passing south of Holborn-hill and Skinner-street, which thoroughfares are to remain as at present, or with but very trifling modifications. F. Wallen (admirably set forth), R. Kerr, L. H. Isaacs, H. B. Garling, N. S. Joseph.

Class 8.—Three designs for high-level streets or viaducts passing north of Holborn-hill and Skinner-street, which thoroughfares are to remain as at present, or with but very trifling modification. L. H. Isaacs, W. Parkes.

Class 9.—Five designs for improving the present gradients by partly filling up the valley, and forming the approaches in Farringdon-street and Farringdon-road by inclinations. J. T. Atkinson and Messrs. Brandon & Freshwater, Messrs. Papworth.

The designs representing four of these classes,—viz., 1, 7, 8, and 9,—submitted by the committee to the Court of Common Council as representing the principles embodied in each of them, we pointed out in our last.

The ultimate recommendation of the committee we have already referred to. In looking to the plans selected as No. 1 (Bell) and No. 2 (Sorby), some striking discrepancies present themselves; and we fail to detect on what grounds No. 1 has its place above No. 2, though we say this with great reserve, knowing on what minute points alone the difference must rest. No. 1 proposes to make the road 80 feet wide; his viaduct is 1,200 feet long, and he puts the cost of the scheme at 143,000*l.*,—a ridiculously erroneous estimate, as we think. No. 2 has his roadway from 60 to 70 feet in width, 1,180 feet in length, and calls the cost 530,800*l.* The latter gives a headway under his iron bridge across Farringdon-street of 27 feet 6 inches in centre, while No. 1, raising Farringdon-street at that point 1 foot 3 inches, calls the headway of his bridge 17 feet 6 inches; yet both viaducts are level. One of the new streets proposed by No. 1 leaves land only 50 feet wide for a double frontage!

Sufficient time was not given to competitors to master the small details on which the goodness or badness of the plan must depend, and it is more than likely that neither of the premiated designs will be carried out. In fact, we have reason to believe, that the plans and notices which are now being prepared, in order to go to Parliament this coming session, are being founded on the design withdrawn by Mr. Haywood from the competition, the result of a long official acquaintance with the roads. One feature peculiar to this plan is the gradual raising of the road in Farringdon-street to a height of 10 feet in the valley, with a view to lessen the gradients of the side streets leading to the new high level of Holborn and Skinner-street. Observations show that, of a traffic of 9,950 vehicles passing through Holborn-hill, 1,013, or about one-tenth, go up and down from the low levels; and of 10,723 passing through Skinner-street and Snow-hill, 3,219, or about three-tenths, go up and down from the low levels. So that a complete and perfect plan can only be that which substitutes improved roads between the high and low levels, as well as forms a good road for the east and west traffic.

Looking to the particulars which accompanied Mr. Haywood's design, when it was sent in anonymously, we find that the property upon both sides of the streets between Hatton-garden and the western end of St. Sepulchre's Church would be taken down, and a high level roadway upon arches made between those points, 70 feet in width, and nearly level.

"It is to be formed," said the author, "more upon the southern than upon the northern side of the existing roadways, inasmuch as the curve will be less, the vista longer, and the architectural effect better.

Farringdon-street is to be crossed by a bridge, with a minimum central headway of 21 feet; this is higher than Temple Bar, which has a central headway of 17 feet 9 inches, and will be higher than the bridge to be built over Ludgate-hill, which is to have an 18 feet headway.

Shoe-lane is to be crossed by a bridge, leaving a clear headway of 16 feet; the gradient of the lane will be improved, and the street will be continued northwards 30 feet in width.

Portions of Farringdon-street and Victoria-street are to be altered in level; Farringdon-street is to begin to rise from Newcastle-street, with a gradient of 1 in 45, and continue at that slope to West-street; thence it is to fall northwards with a gradient of 1 in 535 (or practically level) as far as to Charles-street.

Two levels for the traffic will be therefore obtained; the traffic north and south will pass beneath the bridge, that going east and west will go over the bridge: thus the two lines of traffic can never clash, as they now do, at the junction of Fleet-street, New Bridge-street, and Ludgate-hill.

Victoria-street is to be widened as far as to West-street to the present width of Farringdon-street.

Flights of steps formed at the angles of the bridge are to afford to pedestrians communication with the upper and lower levels.

Two streets, with easy gradients, are to be formed, to afford communication for vehicles, between the upper and lower levels; they are both to start from Victoria-street.

The western street to start opposite to that now in course of formation by the Corporation, and join the upper level at Hatton-garden; the gradient to be 1 in 45.

The eastern street is to start a little north of the bridge over Farringdon-street, and join the upper level by St. Sepulchre's Church; the gradient to be 1 in 45."*

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* Notice of intended application to Parliament in the next Session has been given, to authorise the Corporation of London to make a viaduct for the purpose of a high-level street commencing on Holborn-hill, near Ely-court, passing Hatton-garden, Ely-rents, Ely-place, and terminating in Skinner-street, near the Old Bailey. The following improvements are specified in connexion with the scheme:—A new street, commencing near the junction of Hatton-garden with Holborn-hill, and terminating in Farringdon-road, near West-street; a new street, commencing near St. Sepulchre's Church, Skinner-street, and terminating in Farringdon-road, about fifty yards to the north of Snow-hill; a new street, commencing by a junction with Shoe-lane, near St. Andrew's Church, passing under the viaduct, and terminating in the intended new street, at a point about forty-five yards west of its intended junction with Farringdon-road; a widening on the western side of Farringdon-road between Holborn-hill and the junction of the intended street, nearly opposite West-street; an alteration of the levels of Farringdon-street and Farringdon-road, commencing near Newcastle-street, and terminating about 230 feet north of New Charles-street; power to alter and improve the levels of the western approach to the Metropolitan Meat and Poultry Market in Smithfield; to widen the western end and northern

The cost was estimated at 226,988*l*. To carry out the improvement thoroughly, probably another 100,000*l*. must be added to this amount. Whether, after all, however, this design will be carried out, or by whom, cannot yet be said.

Touching this very important proposed improvement, the question of gradients is one of the greatest consequence. The following statement of the gradients of the main streets adjacent, prepared by Mr. Haywood for the committee, will be found valuable:—

	Gradients.
Farringdon-road—from New Charles-street to Farringdon-street	1 in 88
Fleet-street—from Ludgate-hill to Shoe-lane	1 in 49
„ Shoe-lane to Whitefriars	1 in 46
„ Whitefriars to Fetter-lane	1 in 56
New Bridge-street—from foot of Bridge to Earl-street	1 in 32
„ Earl-street to Union-street	1 in 125
„ Crescent-place to Ludgate-hill	1 in 63
Earl-street	1 in 94
Aldersgate-street	1 in 160
Moorgate-street	1 in 440
Wormwood-street	1 in 60
Bartholomew-lane	1 in 35
Fish-street-hill	1 in 21
Regent-street—from Pall-mall to Circus	1 in 33
„ north end of Waterloo-place to Circus	1 in 30
Ludgate-hill—from bottom of hill to Ludgate-place	1 in 53
„ Ludgate-place to Belle Sauvage-yard	1 in 35
„ Belle Sauvage-yard to Boy-court	1 in 26
Ludgate-street—from Old Bailey to Pilgrim-street	1 in 25
„ Pilgrim-street to party-wall, between Nos. 38 and 39	1 in 37
„ party-wall to Stationers'-court	1 in 38
„ Stationers'-court to Ave Maria-lane	1 in 49
„ Ave Maria-lane to top of Ludgate-street	1 in 66
St. Paul's Churchyard—from top of Ludgate-street	1 in 84
„ 57 feet from Ludgate-street to Dean's-court	1 in 118
" Dean's-ct. to steps to St. Paul's	1 in 80
„ Facing steps to St. Paul's	1 in 110
„ steps to St. Paul's to Paul's-chain	1 in 421
Giltspur-street—from Smithfield to Ball-court	1 in 119
„ Ball-court to Green Dragon-yard	1 in 62
„ Green Dragon-yard to Newgate-street	1 in 52
Old Bailey—from Newgate-street to Fleet-lane has a mean gradient of	1 in 42
„ Fleet lane to Ludgate-hill has a mean gradient of	1 in 78
King-street—from St. John's-court to Snow-hill ditto	1 in 31
The Haymarket	1 in 32
Queen-street-place—from Thames-street to the Toll-bar of the Bridge	1 in 22

Holborn-hill, from the bottom of the hill to near Field-lane, has comparatively unobjectionable gradients, but from Field-lane to Hatton-garden it has gradients of from 1 in 15 to 1 in 27, and a mean gradient of 1 in 19 only. Skinner-street from Farringdon-street, to near the Saracen's Head-yard, has gradients of 1 in 20 to 1 in 24, the mean gradient being 1 in 22. These gradients are admitted to be unfit for any vehicular or equestrian traffic.

OUR RIVERS AND WATER SUPPLY.

THE wet weather during this autumn and the damaging river floods indicate that official inquiry as to the condition of many districts may be made with advantage. Land drainage must go on; as, also, town sewerage and house drainage. The one involves increased productiveness and healthiness of the soil; the other increased value of human life and the healthiness of towns. Rivers, in England, have never received proper legislative attention from the State; and, as a consequence, we find rivers neglected, tampered with, and injured in every way possible. There are thousands of acres of unwholesome swampy land which might be made good, but which land is permanently waterlogged by mill-dams; and there are hundreds of houses standing on subsoil swamped by similar causes. There are many square miles of land in almost every river valley in England now and then laid under water by excessive river floods, as during this autumn. If the money value of the damage caused to land, to crops, to stock, to other property, and to human health, is rightly estimated, it will be found to represent the interest of a very large capital—probably more than would be required to remove objectionable mill-dams, to deepen and improve the outfall of rivers, to make new and more direct cuts for flood waters, and to embank flat districts now covered by flood waters, when there is a rise of only a few feet vertical in the brook, stream, or river waters.

A report on the river areas of England would necessarily fill one or more volumes. Take the area of the valley of the Thames, for instance. This, the first of English rivers, is simply in a condition disgraceful to us as a nation. Look at the condition of the low lands, especially at and near Oxford. There are miles square of country most injuriously laid under water almost every year. Then let the state of the water-supply to the metropolis be considered. The sewage of more than one million of people, besides vast areas of highly-manured lands, drain direct into the water of the river and tributary streams above the point at which water is taken by the several companies for the supply of London. The undiluted sewage of Oxford, Reading, Eaton, and Windsor, with many other places, pours out in a continuous stream, to mix with the water of the Thames above Teddington Lock.

There are remedies, and such that will pay for execution. Remove all objectionable mill-dams and obstructions; embank flat valley-lands; deepen the bed of the river, and otherwise improve it, where necessary; and establish conservators, whose duty it shall be to see to the execution and maintenance of all proper works and regulations on rivers. At present every man or proprietor does that which seemeth good (or bad) with the portion of river flowing past or through his estate.

London must have an abundant supply of water. It is now taken direct from the main stream below the points at which the water is made impure by sewage and surface washings. The Romans would have taken the tributary springs and tributary streams at their fountain-heads, and, by conduits and aqueducts, have conveyed the waters for use in a comparatively pure state. That which the Romans did with difficulty, with vast labour, and with vast cost, we could do with ease and with comparative economy. Modern potters can make earthenware pipes by machinery far larger and better than any used in ancient times, and at so small a cost as to be a wonder to potters, even in this age of cheap goods. These pipes could be laid along contour lines from the numerous upper springs which feed the Thames, so as to be collected in cast-iron pipes and be conveyed, under pressure direct to London, or to the existing pumping stations, to be lifted, as at present. When the health and comfort of 3,000,000 people are considered of more consequence than the vested interests of water companies, or when water companies see that, to secure their monopoly and to give fixed value to their property, the works must be the best for the people which all the circumstances will admit of, there may be a chance of such a work being undertaken. The proudest boast of a Cæsar was that he had given Rome an additional aqueduct, and a fuller and better supply of water.

The rivers of Lancashire and Yorkshire are neglected to the uttermost: they are abused in every way that rivers can be abused. Ashes and rubbish of all sorts are thrown in until the beds are filled up several feet deep. Any man who owns a frontage to a river may use the water and may abuse the river bed; any town may discharge in it its sewage; any print-works or dye-works may pour in the refuse dye or other fluid. Iron-works, gas-works, chemical works, all abuse the streams on which they are situate. One group of streams alone has a protecting power from Parliament—the Irwell and Mersey, above Manchester. This power has not, as yet, been exercised to any practical extent.

During the last century the nation has increased (almost doubled) in population, and more than doubled in wealth; vast progress has been made in agriculture and in trade. It may be said that land drainage, the steam engine, railways, steam navigation, and sanitary works, have been "created;" but our rivers are in a worse condition than when the Scotch rebels passed through the land in 1745. All forms of increase and of improvement in our river valleys and on our river banks have only tended to pollution and injury of the waters. Should this state of things continue?

The natural tendency of rivers flowing sluggishly through alluvial valleys is to silt up their beds and to flood the low and level lands on either side. There are several such districts now traversed by railways, where, occasionally, the locomotive fires are put out by the floods, and the lives of passengers are consequently endangered. These valleys and districts cannot be drained and improved by any single proprietor, nor even by the wealth and energy of a railway company. There are "proprietary rights" and "vested interests" which individuals dare not meddle with, and which even powerful companies shrink from touching. Can a Government, such as ours, reach the evil and provide a remedy? Parliament can, in many things, act despotically. Our rivers require some form of despotic power to work out necessary, beneficial, and economical improvements. We recommend the subject to the notice of our imperial Parliament for its immediate consideration.

side of Newgate-street, commencing at the corner of Giltspur-street, and terminating at and including No. 105, Newgate-street; and to widen King-street, commencing near its junction with Smithfield, and terminating at its junction with Snow-hill. Powers are also sought to charge the expenses of the works to be authorized upon the duty referred to in the 2nd section of the London Coal and Wine Duties Continuance Act, 1863, to authorize the Corporation to raise money on mortgage or annuity, and to apply for the above purposes any moneys under their control.

THE LATE MR. WILLIAM CUBITT, M.P.

ACCIDENT, not want of regard, has led us to delay recording in our pages some particulars of the life of the late Mr. William Cubitt, M.P. for Andover, and President of St. Bartholomew's Hospital. His lamented death took place, as we have already mentioned, on the 28th ult., at his residence, Penton Lodge, Andover.

Mr. W. Cubitt was the second son of Mr. Jonathan Cubitt, and was born at Buxton, near Norwich, in the month of April, 1791, and was consequently in his seventy-third year. Early in life, like his brother, Mr. Thomas Cubitt, he went to sea, but returning, joined the latter as a builder, and together they carried on a large business in the Gray's-inn-road. About the year 1825 this business was relinquished to the subject of our notice, who carried it on till the year 1844, when he took into partnership Mr. W. Dunnage and Mr. R. Alchin, and under the title Messrs. W. Cubitt & Co. executed many large works. In 1850, Mr. George Plucknett and Mr. Rogers joined the firm; and in 1858, Mr. Alchin having retired, Mr. Robinson became a partner. Mr. Cubitt had withdrawn from it in 1851, leaving only his name. The principal buildings erected by him before the formation of the firm, were Hanwell Lunatic Asylum, Covent Garden Market, about ten miles of the London and North Western Railway at Berkhampstead, and the extension line from Camden Town to Euston-square; various buildings for the company at Euston, Camden, and other stations on the line; new warehouses at the London Docks, and repairs to foundations and piers of old Westminster Bridge.

In conjunction with his partners, he built the new graving dock at Southampton; the terminus station, and other buildings at Euston-square; enlarged the Government Offices, Whitehall; and repaired Blackfriars Bridge.

To make the list more complete, we may add, as executed by the firm after Mr. Cubitt's retirement, the new dock and entrance at Shadwell, for the London Dock Company, and several new warehouses; alterations to the Royal Chapel, Buckingham Palace; enlargement of the National Gallery; the enlargement of the Stock Exchange; the new temperate house, Kew Gardens; and various works at the Bank of England, St. Paul's Cathedral, Royal Exchange, and so forth.

Mr. Cubitt, although he had retired from the firm, felt an attachment for his old place that never quitted him to the day of his death. When he left, the remaining partners had his portrait painted by Grant, and the leading foremen and others in the establishment subscribed together and caused it to be engraved by Mr. Atkinson, at a cost to them of 250*l*.

In 1847, Mr. Cubitt was elected Sheriff of London, his colleague being Mr. Charles Hill, F.S.A. During their year of office occurred the memorable 10th of April, when foreign statesmen gravely anticipated that England was about to undergo a revolution. The writer well remembers, and it was a circumstance to be noted, that both the sheriffs were dining, in the evening of that day, in the gayest of spirits, with the "Britton Club," of which they were members, with several others holding authority, John Britton himself at the head of the table. Whatever may have been thought of the matter abroad, there was no fear at home.

In 1851, Mr. Cubitt was elected alderman for the ward of Langbourne, on the death of Sir John Key. In 1860 he became Lord Mayor of London, in succession to Alderman Carter. The recorder,

on that occasion, told the Chief Baron truly that Mr. Cubitt had "conducted his business with singular intelligence and success; and, by his great consideration and kindness, had won from the thousands he employed their affection and esteem." At the banquet Lord Palmerston eulogized Mr. Cubitt as a "Hampshire neighbour," and Mr. Gladstone warmly praised him for his "character and capacity." For his liberality during his mayoralty of 1860 61, Mr. Cubitt was proposed as lord mayor for 1861-62. His re-election was contested, but was carried by 1,488 votes against Sir H. Muggeridge's 548. The two years of Mr. Cubitt's mayoralty are noteworthy for his liberality in general, and for the hospitality he showed to the foreign exhibitors and the members of the royal commissions who visited this country in 1862. He opened the subscriptions for the sufferers by the Hartley Colliery explosion and for the Lancashire operatives. He took a memorable part in originating the national memorial of the Prince Consort; and afterwards, with Lord Derby, Lord Clarendon, and Sir Charles Eastlake, had the honour to serve upon the committee nominated by the Queen to assist her in deciding on the form the monument should assume. Nearly the last words he spoke had reference to this memorial.

Mr. Cubitt was elected, as an alderman, governor of St. Bartholomew's Hospital. When he resigned his aldermanic gown he thought proper to resign his presidentship. A contest then arose between the "donation governors" and the "foundation governors," the latter being the aldermen, and the election ended in the return of Mr. Cubitt.

His connexion with Andover commenced in 1847, when he contested the borough with the late Mr. H. B. Coles, in opposition to Messrs. J. N. Fellowes & T. E. Smith, and was elected. In 1852 he was again returned, and this time headed the poll, but there could scarcely be said to be a contest, as the following figures will show:—W. Cubitt, 140; H. B. Coles, 121; J. Curling, 20. In 1857 he was again returned, but his colleague, Mr. Coles, was defeated by the Hon. D. F. Fortescue. In 1859 the poll showed W. Cubitt, 153; Hon. D. F. Fortescue, 120; W. J. Johnson, 114. In July, 1861, he resigned his seat for Andover, and allowed himself to be put in nomination for the City of London, being persuaded by his friends that there was a good prospect of carrying the election in the Conservative interest. In this he was unsuccessful, and his former seat was filled by his late colleague, Mr. H. B. Coles. In November, 1862, on the death of that gentleman, a requisition from his constituents induced Mr. Cubitt to allow himself to be again nominated for Andover, and he was returned without opposition, holding the seat up to the time of his death. In politics he was Conservative, but was favourable to free trade; and he voted for the abolition of church rates.

For some years Mr. Cubitt acted as chairman of the much-abused-by-the-foolish West London Railway Company, and aided in bringing the shareholders into smooth water. Besides the appointments we have mentioned, he was a magistrate for the counties of Middlesex, Surrey, and Hampshire, and in 1848 was appointed a deputy-lieutenant of the last-named county. He was also Prime Warden of the Fishmongers' Company, and in that capacity presided on several remarkable occasions.

In the mention that has been publicly made of his undertakings the embankment of the river Thames at the Isle of Dogs, measuring a mile and a quarter in extent, has not been sufficiently dwelt upon. The ground has been raised 10 feet, new roads have been formed, and a large town has been established, where important industries are being carried on. Here, too, he built a church. Mr. Cubitt, we may add, was chairman of the Royal Commission for the Thames Embankment, and did his utmost to have the embankment carried out.

He leaves four daughters: one of whom, Lady Olliffe, is the wife of the physician to the English Embassy in Paris, and two others are married to sons of the late Mr. Alderman Humphery. He had an only son of great promise, who died in early manhood while at the University of Cambridge. Mr. W. Humphery, we may add, was elected on the 19th inst. to supply the vacancy in the representation of Andover; Mr. Hawkshaw, the engineer, contesting it with him. The numbers were—Humphery, 130; Hawkshaw, 83.

Many of Mr. Cubitt's friends will hear with gratification that the Queen, through Sir Charles Phipps, has sent a very feeling letter of condolence, expressing her Majesty's regard for Mr. Cubitt's sterling character. A passage from the local *Advertiser* will serve to show the estimation in which he was held in the borough.

"His name," says the writer, "will descend to posterity in connexion with the enormous sums by which starvation was kept from the door of the hungry cotton-spinners, as well as in respect of the memorial to the late Prince Consort, in both of which movements Mr. Cubitt took a prominent part. What he was as a man and a Christian gentleman, no words of ours can adequately tell; but if any man living can say one word against him, let him stand forward: we know of none such. What he was as a friend and neighbour, let many once friendless, but now prosperous and thriving through his means and personal influence, declare. What he was as a parent, relative, and adviser, those only know who are now mingling their tears for his loss with their thanks that it hath pleased Almighty God of His great mercy to take unto himself the soul of their dear brother departed. Of his intercourse with the world at large, it is enough to say, that in all things his conduct was that of William Cubitt, the country gentleman. Whether he had to do with the blue blood of the country, or with the ploughman who worked upon his farm, his demeanour was marked by that courtesy and urbanity which never for one moment left him. One of nature's gentlemen, although without a pedigree, he maintained throughout his long and chequered life all the attributes of those whose families date from the Conquest."

This estimation of him is not confined to Andover. Numerous resolutions from various parishes in Lancashire and Cheshire expressive of profound regret have been forwarded to the Mansion House Committee: and the Rev. F. H. Williams, of Ashton-under-Lyne, describes the manner in which the working men of Ashton testified their respect for his memory. He says:—"Without a suggestion from any one but themselves, they assembled in committees and resolved to ask a funeral sermon to be preached in Christ Church on Sunday, the 8th, to his memory; and, for themselves, that they should go to the church in a body, on the occasion, in funeral procession as mourners. Accordingly a deputation from their body—moved principally, I believe, by the overlookers of the town—asked me to preach the sermon. Their proposal, which, I confess, equally surprised and interested me, I of course instantly promised to comply with. It so happened that the sermon had to be fixed for the evening service; and so the men, having formed their procession at half-past five o'clock, walked up in long train, two abreast, of mourners dressed in as decent black as they could procure, and many of them carrying lighted torches, which gave a very novel and funereal effect to their ranks as they moved through the drizzling wet of a dark and boisterous evening. Nothing certainly could exceed the solemnity and propriety of the men's demeanour as they took their part heartily in the long service in an inconveniently crammed church, where many had to stand the whole time. Many who witnessed the deep feeling of the assemblage will not soon forget it."

A correspondent, writing from Manchester, says:—"I have been much interested in reading the encomiums which have been written on the good Lord Mayor,—especially in one letter, from Bradford,—showing a most grateful sense of his exertions for the Lancashire Fund. . . . . There have been several peals of muffled bells rung for him in Manchester, Bradford, and other places,—a touching tribute to his unselfish benevolence. May he hear, as the highest of all rewards, 'Well done, good and faithful servant,' from the lips of his Master in Heaven."

Amen, say we humbly.

AUCTIONS OF PICTURES IN ENGLAND.

Too little attention has been paid to the history of prices that pictures of reputation have brought, by appraisement at a fixed sum, by private sale, or by public auction. Still less attention has been given to the peerage, or genealogy, or Heralds' College descent of pictures of repute. As far as England is concerned (no narrow Bourse, or Mart, or Exchange in such matters), I purpose contributing from time to time, fixed data to supply a want long seriously felt among the many distinguished collectors and amateurs of art among us.

There were three great picture sales in England in the seventeenth century, between 1603, the accession of King James I., and 1688, the abdication of King James II. The three sales to which I refer were those of Villiers Duke of Buckingham, King Charles I., and Sir Peter Lely. Where Steenie's pictures were sold, and when, I shall tell some day in the columns of the *Builder*. The King's sale was conducted by appraisement and advances thereon. Lely's passed under the inevitable hammer of the Christie & Manson of that day.

The sale of the collection of Sir Peter Lely took place in 1681 (the year after his death), and lasted *forty* days. The "conditions of sale" specified "that immediately upon the sale of each picture the buyer should seal a contract for payment according to the custom in great sales." What the custom then was I am not aware; but two years later in London, in the same king's reign (Charles II.), and at the sale "by lottery" at Whitehall (October, 1683) of Prince Rupert's jewels, the king himself was present "to see all fair." The wording of the advertisement in the *London Gazette* is equally curious and suggestive:—

Advertisement.

"PRINCE RUPERT'S jewels are to be disposed of by Lottery at £5 apiece, the biggest prize to be a great pearl necklace, valued at £8,000*l.*, and none less than £100. To be drawn in His Majesty's presence; Who is pleased to declare that He Himself will see all the Prizes put in among the blanks, and that the whole shall be managed with all equity and fairness, nothing being intended but the sale of the jewels at a moderate value."

Remie, or Remigius, Van Limput, the painter, lived in Bedford-street, Covent Garden, and, dying in 1675, was buried (9th November) in the Church of St. Paul, Covent Garden. His collection of pictures was advertised for sale in the *London Gazette* of the year 1677. The advertisement is characteristic:—

Advertisement.

"If any person be desirous to see the Excellent Collection of Italian Pictures of the late deceased *Mr. Remy Van Lemput*, picture drawer, which the Heirs will expose to sale by the way of *Publick Outcry*, on the 14th of May next [1677], at three o'clock in the afternoon, it will be open to view on the tenth; and Mr. Berry, the Porter of Somerset House, will direct them to the place and persons concerned in the sale."

Sir Peter Lely's sale lasted forty days, and brought twenty-six thousand pounds of King Charles II.'s coin, or some fifty thousand pounds of the money of Queen Victoria. Betterton, the great actor, was a purchaser. He bought a Titian, a Giorgione, and a Sir Antonio More,—three different lots for fifty-seven pounds. Betterton's sale is advertised in No. 213 of the first edition of the *Tatler* for 1710; but a copy of Betterton's catalogue is unknown. One picture, and it is a good one, and a specimen of Betterton's good taste in art, is now at Northumberland House,—the fine triple portraits, on one canvas, by Dobson, of "Sir Charles Cotterell, Sir Balthazar Gerbier, and Dobson himself." The Betterton sale price was 44*l.*:—it would fetch 500 guineas now. Great English actors, I may be pardoned for observing, have been collectors. Cartwright, Betterton, Jack Banister, and Charles Mathews collected pictures; Garrick, John Henderson, and John Kemble collected books. William Cartwright, one of the original famous Two Kings of Brentford in "The Rehearsal," left his pictures and books to Alleyn's College, at Dulwich, where a few of them only (sad to say) are still to be seen.

The earliest catalogue in my collection (and it is a very extensive one, having been formed over many years and from many sales, &c.) is a quarto of four pages, thus entitled:—

"A

CATALOGUE

Of a small, but Choice

Collection of very Capital, Original *Italian* and *Flemish*

PICTURES, &c.

By sundry of the most Celebrated MASTERS of the first *Form*, both Ancient and Modern, Painted at *Rome, Florence, Venice, Bologna, Parma, Naples, Genoua, Antwerp, &c.*

Together with

Two Pieces of Rich *Chinese* Tapestry, and Four Lots of other very great and uncommon Curiosities.

Which will be Sold by *Auction*, on *Wednesday*, the 5th of *March*, 1728-9, at Mr. HICKFORD'S great Room in *Panton-street*, near the *Hay-market*.

Where the Pictures, &c. May be viewed on *Saturday*, the 1st of *March*, *Monday* the 3rd, *Tuesday* the 4th, and *Wednesday* the 5th, until the Hour of Sale, which will begin at Eleven a Clock in the Forenoon precisely.

CATALOGUES to be had at the Place of SALE, at Mr. *Monger's* the lower end of *Milk-street*, *Cheap-side*, and at St. *James's Coffee-House*.

In Nummo aureo, mensurâ, non numero accepit. PLIN. de Pictur. Apell.

Printed by A. CAMPBELL, in *King-street*, near St. *Margaret's* Church, *Westminster*."

*** Observe the *origin* of Latin mottos to Tratalgar-square catalogues.

And here (in parenthesis), and as only casually illustrative of my subject, I will mention that *Dr. Seaman's* sale in 1676 was the first book-

auction in London; and that *Samuel Patterson*, who flourished in the first half of the last century, was the first auctioneer who sold books singly in lots, the first bidding for which was *sixpence*.

The conditions of the sale of 1728-9 well merit reprinting. Here they are:—

"*Conditions of this* SALE.

I. He that bids *most*, is the *Buyer*: But if any Difference arise, that the Company cannot Decide, the Picture, or the Lot in Question, to be put up again.

II. All the *Pictures* are warranted *Originals*: The Battle Piece of *Borgognone*, and the Head of *Rosalba*, only excepted; because by some they have been thought Doubtful.

III. That all *Buyers* do give in their Names and Places of Abode, and five Shillings in the Pound in Part of what they Buy, *if Demanded*.

IV. And lastly, That all the Pictures, and other Lots or Numbers, be taken away and Paid for at the Place of Sale, on or before *Saturday* the 8th of *March* Instant.

N.B. *Any Person who cannot attend the* SALE, *may have his or her Commission faithfully Executed, by directing a Letter, or sending a Message by a known Hand to*

Their Humble Servant,

HENRY MONGER."

The conditions thus settled, then follows the catalogue of the lots, *forty-eight* in number,—and by no means a bad bill of fare,—one to send the Trustees of the National Gallery, headed by Sir Charles Eastlake; the Trustees of the British Museum, headed by Mr. Franks; and the whole body of the Society of Antiquaries, to "Mr. Hickford's Great Room at Panton-street, near the Haymarket."

Now, I look on this as a very interesting catalogue of a very interesting sale. Mr. E. M. Ward might make (with Mr. Fairholt's costume aid) a very pretty picture from it. Here, some few feet from the pulpit of Mr. Monger, are many of the Maids of Honour looking at the Pontormo, "Venus stealing a Dart out of Cupid's Quiver," knocked down at 450*l.*, and to whom?—to the Mother of the Maids? No; to Queen Caroline herself!—all the "Maids" giggling and "tittering" at the purchase and purchaser, then turning over and admiring the tapestry "for a counterpane for a bed of state." There, on your left, is the great collector, Edward Harley, Earl of Oxford, with his friend, George Vertue, and the future Duchess of Portland (of Vase memory) close to him and looking on. There, too, on the right, and sitting in her chair, catalogue in hand, is the celebrated Lady Betty Germaine, a great collector and a liberal one, a woman who foresaw the Strawberry-hill Collection, and gave more than one historical memorial to the boy Horace, who in his old age, and as Earl of Orford, always spoke warmly of "dear Lady Betty."

This, then, was a sale of consequence—one that the elder Christie or George Robins would have liked to have sold, and one that the famous King-street auctioneers of 1863 would not decline. Here is a lot to create a fluttering of fans. Lot 42, "Venus stealing a Dart out of Cupid's Quiver," is now No. 458 of Queen "Caroline's bed-room, at Hampton Court." Neither Mrs. Jameson nor Mr. Jesse tells us this; and Felix Summerley (Mr. Henry Cole) is alike silent. This lot (No. 42) put up, as my MS. annotator says, at 450*l.*, was *kept* (bought in) for Queen Caroline, in the name of the King (Augustus, or George II.) for 1,000*l.* The conception and drawing of the goddess are amazingly fine; but the face is unlovely, and the figure Amazonian.

One word more about this Pontormo "Venus," not to be found in Handbookers' pages or editorial notes. This was "the very pretty altarpiece" so unmistakably referred to by the Chaplain, who was unwilling, with Church preferment before him, to read the service of the Church before the first Queen Caroline and such a picture.

Touching lot 43 of Hickford's auction, the basso-relievos by Valerio Belli, called Valerio Vicentino, consult Walpole, in his "Anecdotes."* The lot (in every way remarkable) has equally escaped the noble author and his two editors. In what choice cabinet is this Vicentino now? Is it with one ignorant of its worth? Perhaps Mr. Albert Way (all accomplished in many arts) may have made a "note" of its "fashionable movements."

PETER CUNNINGHAM.

* Walpole's Works, iii. 138.

"ACOUSTIC POTTERY."

L'ABBÉ COCHET re-excites the attention of the English public, in the *Gentleman's Magazine* for this month, as to a curious subject, which will be found referred to in a leading article on "The Mystic Chaldea," in the *Builder* of 22nd August, 1857; and which same subject, in another and less ancient form, as some of our readers may recollect, was discussed in the *Builder* on another occasion, when some "acoustic pottery" was found at Fountains Abbey by Earl de Grey.

The chief purpose of L'Abbé Cochet is to bring under notice what he calls "an interesting archæological question [which] has lately been raised by M. Didron in his *Annales Archéologiques*. It relates [continues the Abbé] to the acoustic means employed in the Middle Ages, to repeat words or sounds in our religious edifices." This question has been introduced to France by a Swedish architect, M. Mandelgren, and by two Russian architects, Messrs. Stassoff & Gonestaeff, who are at present in Paris, engaged in the study of French architecture. These gentlemen state that in Sweden, Denmark, and Russia, there are "cornets and pots of baked earth placed either in the interior walls or in the vaults" of churches; and as Christianity was introduced into Scandinavia chiefly from France, they thought it probable that such pots or vases might be found in French churches also; perhaps, however, brought to the west with the Byzantine style of architecture itself. What we have to add to the information of M. Didron and L'Abbé Cochet, will tend to show the great probability of this last suggestion, and carry us still farther back, indeed, than Byzantine and Greek times altogether.

M. Didron, in the *Annales*, of which he is the editor, cites two facts to show the existence in France of acoustic pottery. Cornets of baked earth have been found in the walls of the church of St. Blaise of Arles, believed to have been built in 1280; and in the Chronicle of the Celestines of Metz, the Chronicler Messin, under date 1432, says;—

"In the month of August in this year, on the vigil of the Assumption, after Brother Odo Leroy had returned from the before-mentioned general chapter, it was ordered that pots should be made for the choir of the church of Ceans, he stating that he had seen such in another church, and thinking that they made the chanting resound more strongly. They were all put up in one day, as many workmen having been employed as were necessary."

Thus "the custom of acoustic pottery," as L'Abbé Cochet calls it, seems to have been adopted at two extreme points in France; and the Abbé adds a few more facts collected in the cradle of Christianity for Norway, namely, Normandy, during a thirty years' study of churches there, and especially in Upper Normandy, where he five or six times noticed the particularity in question. Thus in 1862 the workmen engaged in pulling down the old church of St. Laurent en Caux (canton of Doudeville) were surprised to meet with a large earthen vase, of which the form was as remarkable as the position. This vase, placed in one of the angles of the choir, was entirely enveloped in mortar, and its form was that of a cone closed at each end. It had no other opening but a beak, which appeared in the form of a cornet at the surface of the wall. The exterior of the vase was furrowed with horizontal grooves. The form of the vase, and the earth of which it was composed, led him to ascribe it to the thirteenth century. He had remarked the same peculiarities of fabrication on vases of this epoch found at Leure, in the tomb of Pierre Berenguer, in 1856. The second acoustic vase that he mentions came from the Abbey of Montivilliers, and is now preserved in the Library of that city. It was taken from the vault of the choir under the tower of that royal monastery, and he conceives it was placed there at the rebuilding of the house in 1648 by the ladies of L'Hospital, abbesses of that establishment. L'Abbé also noticed a dozen acoustic holes in the four angles of the clock-tower, of which the vault was ruined in the seventeenth century. A third vase which he has found is one of the sixteenth century, discovered in the choir of the church of Fry (canton of Argueil). During the reparations there in 1858, four of these vases were found, two of which were in the sacristy. They appear to be culinary vases. In 1852 he remarked, in the now destroyed church of Alvimare (canton of Fauville), circular holes in the prisms which surround the pillars of the choir and the clock-tower. These holes, he says, were nothing but the openings of earthen vases placed in the walls as agents of repercussion. In the church of Mont aux Malades, near Rouen, these vases fill the windows of the nave and the choir. They were found in 1842, when the Romanesque pilasters of the twelfth century were restored, but the acoustic operation, he thinks, belongs to the seventeenth. He had also observed these acoustic vases in the church of Contremoulins, near Fécamp, and in the ruins of the choir of Perruel, near Périers sur Andelle (arrondissement of Andelys).

Germany, England, and France, L'Abbé has no doubt, will add to this gleaning from Normandy. "We would almost say," he adds, "that the theatres of antiquity have known these resources, and that Vitruvius himself has spoken of acoustic vases."

Now such vases as those described by L'Abbé Cochet, M. Didron, and the Swedish and Russian architects, have not only been found built into the walls of Greek rooms where choruses were sung; but, strange to say, among the ruins of sepulchral buildings in the cities of the dead discovered on the site of ancient Chaldea the very same peculiarity, of open vases, implanted, by thousands, in a wall, mouth outwards, but in this case on the outside of the wall, was found some years ago by Mr. W. K. Loftus;* and the subject is one of so remarkable a kind that we shall quote Mr. Loftus's account of his discovery in full:—

"Warka is a complete mine for extraordinary and unheard-of modes of decoration in architecture. Within a stone's throw of the south-west façade at Wuswas, is another mound crowned with a curious building, which has some points of resemblance to the cone-brick structure last described. It rises abruptly from the base of the artificial mound on which the Wuswas ruin stands, and appears to have been a tower of unbaked brick. My attention was particularly directed to it by the enormous quantity of broken pottery and conical ends of jars which lay around. On excavating midway up its north side, I came upon a kind of basement, or perhaps terrace, of mud-brick abutting against a mass of compact earth. Upon the latter was raised a wall composed entirely of unbaked bricks and a peculiar species of conical vase, the fragments of which lay strewed on the surface. This wall was traced about 100 feet, but was extremely irregular in plan, at one point projecting forward 4 feet, then rounding off and receding 8 feet. It afterwards resumed its original direction for 43 feet, then made an obtuse angle, and finally bore away as before, when I ceased to follow it further. Above the foundation were a few layers of mud-bricks, superimposed on which were three rows of these vases, arranged horizontally, mouths outwards, and immediately above each other. This order of brick and pot-work was repeated thrice, and was succeeded upwards by a mass of unbaked bricks. The vases vary in size from 10 inches to 15 inches in length, with a general diameter at the mouth of 4 inches. The cup or interior is only 6 inches deep, consequently the conical end is solid. The cup was formed by a regular turning apparatus. These vases, from their great thickness throughout, are capable of bearing very considerable pressure, although the greatest proportion of them was broken by the superincumbent mass of earth. With their circular mouths outwards they produced a very strange effect, more striking even than that of the painted cone edifice already described.

It is difficult to conceive the purpose for which these vases were designed. We know, however, that large inflated vases were sometimes built into the walls of the Greek rooms, for the purpose of making the choruses resound during their revels; but in this case the vases were within, not outside, a chamber, and had spacious instead of extremely narrow and shallow cups. The vases at Warka could not, therefore, have been applied to the same use. Excepting as another application of the cone for an ornamental design, it is difficult to conceive their utility; but it is not improbable that the same system of architectural embellishment may be traced in the tasteful designs of vases and pipe-tiles, which form such elegant open-work patterns in the terrace walls of Mosul and other Eastern towns on the tops of the houses, where the natives sleep during the hot nights of summer."

The solid cones, like the conical vases, were laid horizontally in the midst of cement of mud mixed with chopped straw, and with their circular bases facing outwards and their points inwards, just as the hollow cones or conical vases were. Mr. Loftus saw a wall at Warka, 30 feet long, entirely composed of these cones, and similar cones are found in many other ruins of undoubted Babylonian age, which, unlike Warka, have escaped being built upon by succeeding races. Mr. Taylor discovered them plentifully, both at Múgeyer and Abú Shehreyn, at which latter place they occurred 10 inches in length, composed of limestone and marble, and sometimes with a rim round the edge filled with copper. They were, undoubtedly, much used as an architectural decoration in Lower Chaldæa, and always in connexion with sepulchral remains. "Cones, or rather horns [cornets?] of baked clay," according to Mr. Loftus, "frequently occur on the same ruins, inscribed round the thick part of the circumference in early and complicated cuneiform characters. They, however, appear to have been attached to some other object, and are usually bent at the summit of the cone. One of these, obtained by me at Warka, bears on it the name of Bel or Belus. It is engraved in Mr. Layard's 'Nineveh and Babylon,' p. 564, and is now in the British Museum."

These cones remind one not only of the cones in the hands of Egyptian and Assyrian priests, but of those used by the Buddhists, apparently as a sort of fetish objects on which to fix the eye in that "contemplation" which forms so distinguished a religious duty in Thibet, China, and India. Built in thousands into a wall, however, one cannot imagine them to have had any such purpose; and neither could the hollow cones outside the wall have had

* Travels and Researches in Chaldæa and Susiana. London: Nisbet: p. 190.

anything like an acoustical object in view, although in the less ancient use of such hollow cones or vases in churches, and even in Greek rooms, such a purpose may have been intended. Can it be that the Chaldæan cones, solid and hollow, were fetishes, such as we have indicated, and were built into the walls of the sepulchral temples of the cities of the dead at the deaths of the possessors? If so, this might account for the irregularities of the wall; and as for subsequent practices of a like order, may they not have merely been traditional and without special purpose, at least till the idea was appropriated to acoustical uses, real or imaginary? At all events, the original practice in Chaldæa could not, one would think, have had anything to do with acoustics.

ON THE CONSTRUCTION OF DWELLINGS FOR THE POOR.*

ALTHOUGH the subject of the few remarks which I have the honour to submit to you this evening is full of interest to all who are either directly or indirectly engaged in the improvement of the domestic condition of the poor, and might still in skilful hands be treated with novelty, I fear that it has been so frequently discussed at *séances, conversazioni,* and public meetings of all kinds, and has received so much attention from the editor of the *Builder,* whose valuable journal is in everybody's hands, as to render the hope of obtaining much additional information or entertainment from the little which I have to say exceedingly small. If you will allow me the quarter of an hour allotted by the patron to his vicar for the duration of his Sunday morning's sermon, I think it will be sufficient; and I shall try to tell the little I have to tell within that time. I cannot but feel that some apology is necessary for venturing to dignify by the name of "paper" the following brief record of my experience; but I have done so with the hope that, under this title, it will incite a discussion which will elicit suggestions of more real value than it can offer itself.

I believe that it is usual, in entering upon a description of any style or peculiarity of building, to date from the time of the Israelitish captivity, and to give a history of the first brick.

May I beg that one exception to this established precedent be made in my favour; and, as I really know nothing of this great ancestor of a most numerous progeny, how he was made or what became of him, may I be allowed to tell the little I have got to tell without further allusion to him or to any of his relations not intimately connected with our present subject?

There are two distinct classes of dwellings for the poor which deserve our consideration, viz.—urban or town dwellings, and suburban dwellings or cottages.

Although the leading features of construction and detailed arrangement are the same in both, perhaps it may be well to describe first those which I consider are peculiarly applicable to town dwellings intended for working men, whose wages range from 12s. to 24s. per week. Hitherto workmen of this class have been strangers not only to the comforts and conveniences which render home attractive, but to the barest accommodation necessary to render social life tolerably decent; and, although it may appear a strange assertion to make, it is nevertheless true, that the nearer an improved dwelling approaches its miserable predecessor in general aspect and character, the more popular it will be.

The difficulty, therefore, in designing new homes for the poor consists in the introduction of improvements which shall lead to the gradual abandonment of injurious habits, and give no sudden offence to jealously cherished prejudices. To do this effectively it is desirable to ascertain, as accurately as possible, the leading requirements and peculiarities of the inhabitants of the district in which it is proposed to build.

If a labouring man be taken from one low small room in which he has been accustomed to live with his wife and four or five small children, and be placed in a dwelling which he cannot afford to furnish or keep clean, and where he is not comfortable and at ease, he will consider himself badly treated, and wish that he had been left alone.

No symmetrical or beautiful building will ever compensate him for the loss of a cabin which was convenient to him, and where he felt himself at home.

I consider that a poor man's town dwelling should consist of a living-room and bed-room, with provision for additional bed-rooms when required;—that it should possess a plentiful and accessible supply of water both for ablution and cooking; a W.C., sink, and lavatory distinct, but not far removed from his tenement; a wash-house, with the means of drying clothes in any weather without artificial heat; and, lastly, when practicable, a play-ground for his children.

In my opinion the living-room should be 12 feet by 10 feet in the clear, *i.e.*, that this area of 120 square feet should not be obstructed by fireplaces, cupboards, or other similar projections; that its walls should be square, by which I mean that there should not be more than four angles or corners on its ground-plan.

Rooms of a regular shape are more easily kept clean, are less expensive to furnish, especially when carpet or other covering is required for the floor; and, what is of no little importance, much more capable of being made comfortable, than rooms with a varied outline.

The entrance-door should open into a porch or vestibule, and be placed at one end of the wall, opposite to the window; so that when both are open, the air in the dwelling may be effectively changed.

The window should be situate in the centre of its own wall, and sufficiently large to light every part of the room. It should be a sash window, to insure top and bottom ventilation; and its cill should not be more than 2 feet 9 inches from the floor, otherwise high furniture may be placed beneath, and the difficulty of reaching it will cause it to be seldom opened. If it be glazed with tolerably large panes of glass, the probability is that there will be fewer breakages than if the panes were small.

The fire-place should also be, if possible, in the centre of its own wall, and be furnished with a range containing boiler, with a cock of the best description fixed 2 inches above the bottom; an oven, and cooking-place at least 10 inches wide from side to side, with sliding bars, flap, and catch, all of which ought to be of wrought iron.

The living-room should be further provided with a good serviceable closet, containing shelves for cooking utensils and crockery, clothes-pins, and a large covered box for coal. It should be the entire height of the room, having its front flush with the chimney-breast; and it should be lighted by a small casement window hung upon centres, and easily opened. The bedrooms should be 12 feet by 8 feet, and like the living-rooms, at least 8 feet high. They should communicate with the latter by a door in the wall opposite to the fireplace at the end nearest to the window, so that sufficient wall-space may be secured for the bed. As the bedrooms are supplied with warmth from the living-room, fireplaces are not much required; and although they are valuable additions, I do not consider their introduction necessary where space is limited or where expense is of much importance.

It is very desirable that the walls of the dwelling should have neither plaster nor paper. If they are well built with sound stock bricks, and coloured with two coats of well-sized distemper-colour of a warm and cheerful tint, they present a good and comfortable-looking surface; they offer no harbour for vermin; they are uninjured when picture-nails are driven into them; and their freshness and colour are easily renewed at a trifling expense. These cannot be regarded as unimportant advantages by those who recollect that it is almost impossible for the working man to avoid bringing creepers into his home; that he will surround himself with pictures whenever he has an opportunity; and that he very much objects to taking a dwelling whose walls are covered with the half-dirty paper of a previous occupant. If vermin succeed in hiding themselves in plaster they increase and multiply so quickly that their banishment becomes almost impossible. If nails are driven into papered walls and afterwards carelessly removed, they tear the paper and leave holes which, besides being unsightly, offer the most convenient nests to the creeping things we have alluded to. The workman's pictures are not often satisfied with one nail,—they require half a dozen at least to keep them straight. I consider the average number of nails for a picture to be ten, and the average number of pictures (large and small) to be ten: a little calculation will soon show how many holes may be left in paper plaster when these ten pictures are removed to adorn another habitation.

The working man is a nomad, as much so as the Arab of the desert. The nature of his employment compels him to wander from place to place like an unquiet spirit. He cannot, therefore, be regarded, under any circumstances, as a permanent tenant; and, as the improvement of his habits and tastes is one of the objects most desired by those who undertake to improve his home, it is of importance that, when he first takes possession of it, he should find it clean, and fit for immediate use. Now, if dirty walls are to be re-papered every time a new tenant objects to their appearance, it is evident that much time and money must be most profitlessly consumed; whereas, if the walls are merely coloured, a couple of hours and a pailful of colour suffice to restore them to their original freshness.

I have dwelt, perhaps, tediously upon the surface covering of the walls, because, without having seen them, persons suppose that what they term "bare walls" must present a prisonlike and comfortless aspect. A visit to some of the dwellings in London would, I think, remove this impression, for it would prove that a look of cheeriness and comfort could be obtained, even in those tenements where the walls were uncovered by engravings and coloured prints.

After having entered into so strong a protest against plaster, perhaps it may appear inconsistent to recommend it as the most suitable material for the ceiling. I do this, however, for two reasons: first, because it has a finished and clean appearance, and, being almost out of reach, its liabilities to injury are few; and, secondly, because it is a preventive against the spread of fire. The construction of fireproof ceilings is often unsightly, without being effective, and requires a concealment, which increases its expense.

I forget who has called man a "destructive animal," but I think there can be no doubt that children are destructive little animals. A hatchet or a hammer is a valuable instrument for evil in their hands, and their contentment is perfect when anything to be hacked or hammered is placed within their reach. All that I have hitherto specified as desirable additions to a workman's dwelling have been of a tolerably solid description, but I have said nothing of the floor. Wood is certainly not very hard: it is inviting for nails; is apt to get dirty, and tolerably difficult to clean; and yet, in my opinion, a wood floor is the best that can be constructed for our purpose. If it be not very hard, it is not very rigid, and its elasticity enables it to bear heavy and sudden blows without injury. If firewood or coal are broken upon any other floor than a wooden one, the concussion is much more injurious. If nails are driven into the joints, or the boards themselves, they are easily extracted, and leave no marks behind them; and if an extra amount of scrubbing be necessary to keep them clean, no one will deny that visible cleanliness is better than hidden dirt. Tile and asphalte floors have often been recommended as the best; but, though the former have a clean appearance, they are cold to the feet when uncovered by a carpet; they are more liable to injury than floor-boards; and they are more troublesome to repair and replace when defective. Asphalte and cement floors have, I consider, in addition to these disadvantages, another which ought not to be overlooked. Their efficiency, in great measure, depends upon a rigid foundation, consisting either of brick arches, or concrete supported by iron joists. I have already said that this kind of construction is expensive. The insurance offices object to it on other grounds. They consider that it is not fireproof. In case of fire, after the iron becomes heated and exposed to the action of water, fracture ensues, and ruin speedily follows; whereas, a substantial wood floor, with plaster ceiling, will, in small tenements like those I am describing, resist the spread of fire for a considerable time. Having attempted thus far to describe what I believe every working man would acknowledge to be contributive to his comfort and convenience, I will say one word upon an item affecting his domestic economy, in favour of which his approbation is much less certain. I allude to ventilation.

If there is anything in the world that a poor man hates, or a poor man's children are educated to hate, with cordial, sincere, and unquenchable hatred, it is fresh air. No preaching, reasoning, expostulation, or cajolement will induce him to breathe freely among his own penates, if he can help it. So successful is he in excluding every breath of air from his dwelling, that his very fire remonstrates, and smokes vigorously. If its cloudy signs be disregarded, which they invariably are, of course, after a time, it collapses and expires. Its death, however, offers no warning: windows and doors remain closed, and to be stifled without a fire is preferable to easy respiration with one. No one will deny that dwellings must be ventilated, but few will be able to say how it is to

* By Mr. H. A. Darbishire. Read at meeting of the Architectural Association, on the 13th inst. Report of the discussion which followed will be given in our next.

be done. Beyond supplying doors that do not fit too close, windows that will open at the top and bottom, and fireplaces with air-channels underneath the floor, it is extremely difficult to know how to proceed further without detection. A ventilator, once discovered, instantly becomes useless. It is pasted over, if small; and if large, is made the receptacle of every cast-off garment, from a bonnet to an old shoe. The most successful ventilators that I have tried are some perforated bricks, so adapted that they will admit the external air without causing a draught. I have introduced them throughout the length of the wall in which the windows are placed, and in that opposite to it; and the air is so diffused by its passage through the narrow channels with which the bricks are provided, that the paste-brush is seldom considered necessary to oppose its entrance. I think that you will admit this to be a point of no little consequence in their favour. Still I am obliged, in a great degree, to trust to doors, windows, and fireplaces, and endeavour, by their arrangement, and accessibility to fresh-air currents, to tempt the boon which the workman despises.

I cannot leave the subject of ventilation without adverting to one intimately connected with it. I mean drainage. I consider that, after the foundations, no portion of a building deserves more careful attention than its drains.

In dwellings provided for persons who are not remarkable for the care they bestow upon the property of others, it is especially desirable that the drain-pipes should be of the best description, and that their diameters should be larger than those employed under ordinary circumstances, because their liabilities to obstruction are very much greater. Boots, brushes, bones, pieces of furniture, and even old clothes, are not unfrequently found in the drains of poor neighbourhoods. That these and similarly unwelcome intruders may be easily removed, it is desirable that the main drains should be external to the building; that they should be supplied with examination holes at certain intervals for the purposes of repair and cleansing; and that they should possess the means of being regularly flushed with water. None but the inferior drains should be laid within the building, and these should take the shortest possible course to the main drains. In all situations where the site of the building is spongy or soft, or consists of made ground, the drains, both large and small, should be laid upon beds of concrete, in order that their proper falls may be preserved; for upon this the efficient drainage of a building mainly depends. Soil and other pipes connected with the drains should be ventilated, as far as practicable, by being taken above the roof, and no precaution whatever should be omitted to ensure the healthfulness and purity of the building.

In addition to the living-room and bed-room and their requirements, which have taken up so much time in this description, I consider that to every poor man's town dwelling a lavatory should be attached: this should contain a W.C., fitted with Lambert's strong galvanized iron valves; a lead trough, supplied with one of Chrimes's high-pressure loose valve cocks, and furnished with an enamelled iron basin for ablution; and a smaller lead trough or waste for the discharge of dirty water, with an inch service cock above it for the supply of pails and kettles. The walls of the lavatory should be finished and coloured as those of the dwelling; but to the height of 18 inches above each trough they should be painted with four good coats of oil colour, that they may be frequently and easily washed. The floor should be tiled with thick 9 inch square tiles, which bear a good deal of wear and tear, and slopping in one spot without injury. The lavatory should be lighted by two windows at least, one in the external wall of the W.C., and one at the furthest end of the wall, at right angles to it. The door should be at one end of the wall, opposite to that which contains the closet window, so that there may be no possibility of stagnant air remaining in the place.

Botanists tell us that roses and other beautiful flowers are partial to soap-suds; but I know of no class of naturalists that has alluded to their powers of attraction for the workman's wife. It is not probable that if there be no tub and water her sighs after the suds will be either frequent or deep; but give her these, and a small copper in addition, and her latent love and powers to scrub rise up like Astarte's ghost. Every bit of rag she can find must be washed;—not half washed, but washed in every stage of washing—soaped, rinsed, and boiled over and over again, until there is more wash left than rag. To attach a laundry, then, to the dwellings of those born with this affection is a positive duty; and it is well to consider how it may be gratified in the most efficient and practical manner.

In my opinion, it is important that the accommodation should be as simple as possible; that the supply of water should be near at hand; and that all artificial means of drying, excepting, of course, clothes-wringers, should be avoided. The furniture should consist of a washing-tub and rinsing-tub, about 3 feet 3 inches long by 1 foot 9 inches wide, with washer, plug, and chain, and a separate cold-water service to each. The top of the tubs should be 3 feet 6 inches above the floor if foot-boards are provided, and 3 inches less if there be no foot-boards. There should be a 10-gallon copper provided, with a cold-water service and a tin ladle. Especial care should be observed in the construction and arrangement of the flue, to insure the heat being well distributed over the sides and bottom of the copper, and to afford facilities for regulating the heat and cleaning. Child's American wringers should be provided when hydrometers are not used. They are easily attached to the tubs, are effective and simple in their action, and can be procured at a moderate price.

It is desirable that the cistern or source from which the water-supply is obtained should be as close to the laundry as possible, in order that the piping may be short, require few joints and bends, and be free from the risks which attend a variety of levels. Perhaps I ought to observe that in all matters relating to water-supply, more attention should be paid to the dimensions of the iron piping and the nature and position of the services than they usually receive. For instance, means should be provided for filling, emptying, and cleaning the cistern, tank, or whatever the main supply may be, at any moment; also for regulating the supply in such a manner that when any portion of the piping is under repair, the water may be partially or entirely excluded from it. Every rising main should be furnished with at least two cocks; and, where the building is peculiarly liable to fire, there should be an additional cock 2 feet above each floor-level, for the supply of buckets, and for the connexion of hose. The first cock should be fixed in the junction between the rising main and the company's street main, so as to regulate the entire supply of the building. The second should be fixed at the bottom of the rising main, so as to release the water which remains in the pipe after the cistern is full, otherwise the main will be liable to injury from frost, especially in exposed situations.

The artificial means of drying clothes, which are adopted with advantage in the public wash-houses, are to be avoided in small laundries, because they require fuel, machinery, and supervision, which cannot be supplied and maintained without considerable expense, and which do not secure advantages at all commensurate with the attendant risk and cost. As far as my experience teaches, I find that clothes are easily and effectively dried, if they are protected from rain, and suspended in strong cross currents of air, and that wherever spaces suitable for this purpose can be obtained, other expedients are not required.

The last item on my list of contributions to the comfort of a workman's town dwelling, is a playgrounnd for his children. A few square yards are of inestimable value where house-room is limited: their value, however, increases their scarcity; and in London, the miserable little space which the Act requires to be in the rear of each dwelling, is all that the landlord can afford to allow to his overcharged and over-crowded tenants.

I consider that a great portion of the success which has attended the erection of large blocks of dwellings for the poor in towns, and especially in London, is attributable to the playgrounds which are placed at the disposal of the inmates. One large playground to one large building is of much greater use than many small yards to as many cottages.

The consideration of this subject has brought me to a point where my description of details may terminate with advantage in favour of one relating to buildings designed to contain several dwellings; and of these I shall say a few words before I conclude.

The site for a block of associated dwellings should be as open and in a situation as public as possible, not only to receive the advantages of light and ventilation, but because it is desirable that it should be easily accessible and easily found, and that the residents may have frequent opportunity of contact with neighbours whose habits and appearance are superior to their own. The ends of the site should face north and south, so that its east and west sides may have the morning and evening sun. It should offer every facility for good drainage, and it should not be near an exhausted gravel-pit, which has been filled up with dead or decaying animal and vegetable refuse. If the site has been long unoccupied by buildings, the nature of its subsoil should be well ascertained, as it not unfrequently happens in neighbourhoods where new dwellings are most required, and where scavengers and sanitary commissioners are rarely seen, that vacant plots of ground are regarded by the inhabitants as special provisions for their convenience, and are appropriated accordingly as economical dustholes, that require no cleaning. Owing to the increasing value of land in towns, large building sites are not to be obtained, except at considerable cost: it is necessary, therefore, to ascertain what area and shapes are most desirable, and to distribute every foot of space to the best advantage.

The most economical dimensions for a site, within the jurisdiction of the Metropolitan Board of Works, are 108 feet by 60 feet, as they will accommodate a building 108 feet long by 34 feet wide, and admit of a play-ground 26 feet deep in its rear. The multiple of 108 by 34 (3,600 in round numbers) is the area allowed by the arbitrary Act by which we are governed to a building containing several distinct tenements, and possessing only one entrance and staircase. It is, therefore, of consequence, that its distribution into tenements, lavatories, laundries, bath-rooms, staircases, and passages, should be such as to secure the greatest convenience and comfort with the least possible loss. To do this effectually, it is requisite that the building should be of a certain height, which, I consider, should not exceed 46 feet from the ground-line to the eaves of the roof. This dimension admits as many stories of dwellings as can be occupied with comfort to the tenants, and it requires no unnecessary thickness of walls. If it be expedient, as I have already suggested, to consult the wishes of one resident living alone, it certainly becomes much more so to comply, as far as possible, with those of several residents when congregated under the same roof. And very high buildings offer obstacles to the accomplishment of this very desirable end, too serious to be disregarded. To avoid all envyings and grumblings, the plan should be arranged so as to distribute the advantages of residence in tolerably equal proportions to all; and, therefore, the subdivision of the allotted superficies of 3,600 feet, and the prescribed height of 46 feet, which I propose, is as follows: whether it be the best, will, I hope, be decided by and by.

Dwellings whose floor level is below the general ground-line are objectionable as residences; and, as they are certainly not popular, I provide no accommodation in the basement, but a small cellar, to which reference will be made hereafter.

The ground, first, second, and third floor plans are divided, throughout their entire length, into two equal portions by a corridor, 4 feet 2 inches wide, each side of which is occupied by dwellings of the dimensions and possessing the accommodation already described. In the centre of one side of the corridor, on the ground-plan, is the principal entrance, and immediately opposite to it on the other side is the staircase. By giving these a central position, equal facilities of access are afforded to every part of the building. The entrance is 5 feet 6 inches wide, and is furnished with external and internal folding doors, under the immediate supervision of the porter, whose office it adjoins.

The staircase is 8 feet wide, with solid square stone steps, having a 10 inch tread, and an average rise of 7 inches. It is partially inclosed, *i.e.*, the side furthest from the corridor contains an arch 7 feet wide, and extending from the ground line to within a few feet of the eaves of the roof. It is separated from the corridor by two arches, whose centre pier contains a dust-shaft, traversing the entire height of the building. It is 14 inches span within, open above the roof for ventilation, is furnished with a hopper at each floor level, and communicates with a dust cellar in the basement, to which reference has already been made, and which is approached by a small external staircase underneath the first landing of the principal staircase, but distinct from it, so that the dust may be removed without causing annoyance to the tenants.

In all the plans I have mentioned the lavatories adjoin the staircase: those for men's use are on one side, those for the women on the other. This position is central, and will be found to possess other advantages of importance.

The arrangement of the fourth or topmost floor differs from those below it, inasmuch as it contains no dwellings, and is a source of no pecuniary profit. It has the following accommodation,

viz.—A laundry *circ.* 22 feet long by 12 feet wide, open to the roof, furnished with No. 8 sets of wash-tubs, separated by slate partitions; No. 8 10-gallon coppers; No. 8 Child's clothes-wringers, or one of Alliott's patent hydrometers; trellis-framed standing boards; stools for clothes-baskets, soap-boxes, and ladles. Of this furniture there is nothing to remark except that the slate partitions are supplied to ensure a privacy to the washer, which is very desirable; the ragged condition of the clothes, which some of the poor women bring to be washed, being such as would excite remark and ridicule were they not concealed from general observation. Low stools are supplied for the clothes-baskets in preference to tables, because they are more convenient, as being easily removed by the washers themselves.

In addition to the laundry, this floor contains a man's and a woman's bath-room, situate on each side of the staircase and immediately above the lavatories. Each is furnished with one of Rufford & Finch's baths, and a service of cold water. As they are near the laundry, hot water can be supplied without difficulty or delay, when it is required.

A cistern adjoins each bath-room, lined with lead, and supplying the range of lavatories below it. This position secures a direct fall to the several services, and avoids the necessity for frequent bends and joints, which are liable to get out of order.

The remaining portion of this story is unobstructed except by chimneys, and the standards which help to support the tie-beams of the roof, and which serve as clothes-posts for the washers. It is lighted by a range of small casements, capable of admitting air sufficient to remove any vapours or unpleasantness that might arise from the laundry, and to thoroughly dry all the clothes in the building.

The drainage is simple, and barely deserves notice. The main drains are external to the building, and are 12 inches or 9 inches in diameter. The smaller drains are as short as possible, and are 6 inches or 4 inches in diameter, according to their requirements.

The ventilation, afforded by the plan I have described, is in my opinion one of its principal recommendations. It is secured by the wide corridor, which divides the building, and which serves as a reservoir for the supply of air to the dwellings, whenever the entrance doors are opened. A window at each end of it, and the open staircase in its centre, do not fail to establish ever-changing currents, which forbid stagnation and remove impurities; and, notwithstanding all the tenant's opposition, his old hats, boots, paste and brown paper united, cannot entirely exclude the benefits which lie for admittance at his door. To forestall the inquiry as to the number of families which can be accommodated in a building covering 3,600 superficial feet, and five stories high, I may mention that the number of dwellings will be from forty to forty-five; the number of latrines, sixteen, or rather less than one-half to each dwelling; eight lavatories, or about a fifth to each dwelling; and the same number and proportion of washtubs and coppers. The baths may appear few, but their number is found to be sufficient.

I have now told the little I had to tell of my experiences relating to town dwellings. With a few words about cottages, I shall conclude what I fear you will consider a talk about trifles.

The internal accommodation which I have found to be most suitable for small cottages in the country, consists of living-room about 12 feet square, with a small scullery and closet attached, and a washhouse, about 10 feet by 9 feet, on the ground-floor, and three bedrooms and a closet on the floor above. Outside the cottage a yard should be provided to contain the ashpit and privy, and a place for coals.

Although land in the country is less valuable than in towns, the plan of the cottage should not be straggling, or render a variety of roof lines necessary; and although its arrangement should be compact, it should not be cramped. Ingenuity may be shown in fitting one portion into another, but it should not be carried too far, as sometimes happens. I have seen instances where the spaces have been so intermixed and of such extraordinary shapes, that the ground-plan resembled a Chinese puzzle more than anything else. Shapeless nooks and corners do not become convenient cupboards and closets because they are inclosed and possess a door, but rather most inconvenient hiding-places for mice and dirt, which render the place unwholesome and a nuisance.

The temptation to build picturesquely, and to try experiments with new materials and methods of construction, is much greater in the country than in town. Projections and angles look better on plan than plain straight lines, coloured bricks, bands of ornamental tiles, glazed patera, and other similar attractions, may give variety to elevations, but they must be adopted with considerable caution in small buildings. Too many projections make a small building look smaller by depriving it of breadth; and too great a diversity of colour give it a gingerbread and vulgar appearance, and frequently destroy the effect of really good proportions. New inventions and pseudo-economical devices prove too often miserable and expensive delusions.

The details of construction, &c., which I have given while speaking of town dwellings, are equally applicable to those in the country, and I hope that I may be excused from reverting to them, and be allowed to close by quoting for the benefit of all who are about to build cottages for the poor, some words of advice addressed to me in earlier days by the late excellent Professor Cockerell, whose memory will be ever dear to those who had the privilege of knowing him:—"Do not allow novelty to tempt you into experiment, but defer its adoption until it has received the approval of the more experienced."

THE CONSTRUCTION AND ARRANGEMENT OF MILLS.*

Few men—and those few are fast dying off—have enjoyed such varied opportunities for achievement in engineering matters as Dr. Fairbairn. For more than half a century at the head of a well-known firm in Manchester, the metropolis of mechanical engineering, — an engineer with a career almost coeval with the rise of engineering itself,—one of the most noted experimenters of the day,—a manufacturer from whose workshops the most varied descriptions of engineering work have been turned out,—a man honoured with the highest scientific dignities of Europe;—it is with great expectations that one opens a book by such an author. We are sorry to say that a practical engineer, after carefully reading this work, will find his expectations scarcely fulfilled. We have closed the book, not with the regret that its perusal is no longer a pleasure to come, but rather that Dr. Fairbairn should have put his name to a work that only incompletely answers to its voluminous title; to a work of an extremely superficial, and, in many respects, of a somewhat useless character. By what class of readers does Dr. Fairbairn intend this book to be read? Not deep enough for the practised engineer; its matter is insufficient for the engineering student. The work is, in fact, a book of all trades and a treatise on none.

Let us take, for instance, "The Architecture of Mills," *titularly* one of the most prominent subjects of the book. Now, the building of mills and factories, both from a utilitarian and æsthetic point of view, is one of the most interesting, and one of the as yet unexhausted subjects of the day. There is no doubt, that for almost every special manufacture a distinct arrangement of building ought to be adopted; that the building itself ought to be looked upon as a huge machine of brick and stone, intended to work in harmony with the other machines and their attendants, while sheltering them from the sun and rain. One of the main principles in factory construction is that whereby the materials to be manufactured never require to move backwards. The work should not be carried twice over the same space, but should move forward from its entry as a raw material at one end of the premises, to its exit as manufacturers' produce at the other. Another important principle consists in a careful arrangement for extending the works without any difficulty or patching. Almost all manufactories in this country, whether starting on a small or a large capital, may look forward, if well managed, to being extended. We have seen a fortune wasted in building expenses from no previous provision being made for extension. Then comes the principle of central observation, the importance of which was so fully enlarged upon by the late Sir Samuel Bentham.

It requires but a slight acquaintance with workmen to understand that easy means of supervision are always required. If the operative works by "piecework," the work itself has to be looked after; if by "day-work," the men themselves and the apprentices require the eye of the master. The easy conveyance of the materials and operatives,—the same in a factory as the circulation of the blood in an animal,—is another important point, of more or less importance according to the weight of the work itself, and of the number of operations the raw materials have to undergo before they assume their ultimate shape. The lighting of the building, its ventilation, and the means for making it fireproof, are evidently additional things of varying importance to be taken into consideration, as with other buildings. For many manufactures the lighting has to be of a special character. The locality of the factory with respect to water-power, fuel, labour, as also railway and canal communications, would be other matters to be taken into consideration. Land is now so expensive, even in provincial manufacturing towns,—a well-known firm in the north is said to be paying 2s. 6d. per annum per square yard,—that probably no manufactory can be so well established as in the outskirts of a town, and close to a line of railway. Will it be believed that Mr. Fairbairn only meagrely notices one or two of these principles in his "Treatise on Ancient and Modern Mills?" In a large establishment, a princely income may be won or lost accordingly as these points are considered or not in the laying out of the buildings. A well-planned factory represents an annual income to the manufacturers. Most of these requirements will be attained with greater facility if everything be placed upon the ground-floor. Merely with regard to the loss of muscular power in men by ascending and descending a staircase, the "shed" or ground-floor system is of great advantage. According to Sir George Cayley, a man when running up stairs for a few seconds exerts a power of two horses — twelve times the power he can exert with permanent effect. Many manufacturers in the north use "hoists," or platforms rising from floor to floor, with the men and materials. This plan, however, only partially obviates one objection to a factory built with several stories. Into the æsthetic point of view of factory building Mr. Fairbairn does not enter. He merely states that, twenty-five years ago, he formed the corners of a factory-building into pilasters, and made a "slight cornice round the building." We would venture to say that, in these days of specialities, an architect who would devote himself to factory buildings as a speciality, might meet with a lucrative practice. It is from a disregard of these principles that so many factories—absurdly constructed from a utilitarian, and hideous from an æsthetic point of view—are an annual loss of income to the proprietors, and an eternal eye-sore to the looker-on. We have examined many buildings of this kind, both in England and on the Continent, but the best example, in every way, of an engineering factory we have yet met with is that of Messrs. Beyer, Peacock, & Co., near Manchester. A branch from the Manchester, Sheffield, and Lincolnshire railway runs right into the yard of the works: there is a perfect communication between all the workshops by means of tram-lines: all the shops are on the ground-floor, and are lighted from the roof: the foremen can see from their offices the whole extent of their respective departments; and Mr. Beyer has adopted such a perfect arrangement for extension, that his works have been actually more than trebled in extent without pulling down a brick. With the exception of a few tall chimneys, of a somewhat questionable outline, there is nothing in the whole range of these magnificent buildings but what would please a fastidious architect. Of what use to an engineer or mill architect are the popular descriptions of cotton, flax, silk, and other mills, forming the principal part of this book? The irrepressible, but intelligent penny-a-liner has long ago furnished the daily papers with descriptions of this kind. Again, a man of such experience as Dr. Fairbairn should not have to quote so continually from a familiar authority like Dr. Ure. Several pages, printed, by the way, in the same type as the body of the book, are quoted from the late venerable doctor, and two chapters, at least, begin with "Dr. Ure says." In the account of cotton mills, Dr. Fairbairn quite ignores Mr. Richard Roberts, that universally known veteran engineer, who, when scheming the spinning-mill, had to be escorted to his works by a troop of cavalry, in order to protect him from the vengeance of the infuriated hand-spinners.

Even the mechanical engineering portion, properly so called, of the book, is in many respects

* "Treatise on Mills and Millwork." Part II. On Machinery of Transmission, and the Arrangement of Mills. Comprising Treatises on Wheels, Shafts, and Couplings; Engaging and Disengaging Gear; and Mill Architecture; and on Corn, Cotton, Flax, Silk, and Woollen Mills: to which is added a Description of Oil, Paper, and Powder Mills; including a short account of the Manufacture of Iron. By William Fairbairn, Esq., C.E., LL.D., F.R.S., F.G.S.; Corresponding Member of the National Institute of France, and of the Royal Academy of Turin; Chevalier of the Legion of Honour, &c. Longmans. 1863.

deficient. In his account of friction, Mr. Fairbairn might well have alluded to the recent remarkable experiments in France, that seem to almost entirely reverse our received ideas of friction. It has also been lately shown that—given two pillars of the same diameter—a belt can in no case communicate the exact speed of the driving to the down pulley. There is no mention of V-wheels,—a form of gearing coming into use for many purposes. The chapters on shafting form the best portion of the book, and must be very valuable and useful to any engineer or millwright in want of such information. The engravings are also very good, but they greatly lack dimensions. To the millwright this book will be of some value; but it is a failure with respect to mill-architecture.

We repeat—while fully acknowledging the useful character of some parts of this work—that the work scarcely answers to our expectations. However, engineers of the standing of Dr. Fairbairn, in England, write so seldom that we must be grateful for what we can get. There are, indeed, few men that so greatly deserve the gratitude of the country and of the profession as Dr. Fairbairn. His experiments in iron, steam, and other questions—conducted at his own expense—have been landmarks for the engineering profession during the last quarter of a century. The Association for the Prevention of Steam Boiler Explosions, founded by Dr. Fairbairn, has already saved more lives than were ever saved by the Royal Humane Society; and no public recognition has yet been made of his services. We must nevertheless speak of the present book as we find it.

PROJECTED RAILWAY AND OTHER WORKS.

This is the long-advertisement season which issues in the ensuing session of Parliament; and, as usual, it yields a plentiful crop of new railway and other projects. The chief feature in the metropolitan railway advertisements is, that each comprises a number of distinct projects, or separate railways, to be cast like network over the several districts. Thus, there is a Hammersmith and City railway extensions project, with six different railway extensions, loop-lines, junctions, &c., intended to accommodate such places as Mortlake, Chiswick, Kew, Richmond, Hammersmith, Kensington, Ealing, Stroud-on-the-Green, Turnham Green, and other localities; but the details are far too intricate and lengthy for further notice here. Then there is a Hammersmith and Wimbledon project, with five distinct railways, as from the Hammersmith and City line to the Wimbledon and Croydon line of the London, Brighton, and South Coast, and to Kensington, with junctions connected with the London and South-Western. The Great Eastern are applying for power "to acquire station land adjoining Wormwood-street, and make railways [eleven distinct lines] therefrom to various parts of their system and the North London and Tottenham, and Hampstead railways." This network will catch up traffic in a multiplicity of places in the east of London, as well as at Hackney, Tottenham, Hampstead, Walthamstow, &c. Another East London project contemplates the "construction of railways to connect certain railways on the Surrey side of the Thames with certain railways on the Middlesex side thereof; acquisition of Thames Tunnel; working, and traffic, and other arrangements with divers railway companies, and with reference to the Haydon-square branch railway; arrangements with Grand Surrey Docks and Canal Company." There are no less than thirteen distinct railways connected with this project, the meshes of whose network are cast over Bethnal-green, Deptford, Whitechapel, St. George's-in-the-East, Cripplegate, Bishopsgate, Shoreditch, Mile-end Old Town, Aldgate, Minories, Rotherhithe, Wapping, and a multiplicity of other places. A company is to be incorporated "for making railways between Hendon and Chelsea, Chelsea and Bricklayers' Arms Station, Chelsea and Victoria Station, Victoria Station and Westminster, Westminster and the Metropolitan Extension of the London, Chatham, and Dover Railway; with branches to the Mansion House and elsewhere; powers of deviation; powers of interference with streets, roads, &c.; levying of tolls; compulsory purchase of land; junction with and use of stations of, and running powers over, and facilities for traffic over, the railways of other companies." That there is, in short, to be a general running into one another both of lines and trains seems but too obvious. The mere perusal of such advertisements confuses the brain; and what would be the upshot were one-tenth of the projects carried out, it is impossible to conceive.

In the provinces, also, many schemes are afloat; but we can only notice a few of these. A new central station at Leeds is projected. The site is principally on the north side of and fronting Wellington-street, and extending back to and including the Infirmary, or some part thereof, and extending in length from the present Central Railway Station in Leeds, on the south side of Wellington-street, to Albion-street.

The East Gloucestershire railway scheme has been revived, with the object of giving Cheltenham direct communication with London and Gloucester by a broad gauge line to Farringdon. The new line will proceed from Cheltenham through Lechlade and Burford to Farringdon as before, thereby shortening the London journey by twenty-three miles, and opening up the hill district of Gloucestershire; while at Lechlade a branch will be made to the Witney Railway, thereby opening up a direct communication with Oxford and the eastern counties. This branch will shorten the railway distance between Cheltenham and Oxford thirty-two miles; will give a third route to London *viâ* Oxford twelve miles shorter than the present route; and will give direct communication by the London and North-Western line with Cambridge and all parts of the eastern counties.

A second scheme to shorten the communication between Cheltenham and London, and to connect this district with the eastern counties, has been proposed: this is "the London and Oxford District Railway;" and it is a modification of a narrow-gauge line laid out by Mr. Stephenson and improved by Sir Charles Fox. The line will follow the old coach-road over the hills, and, passing through Northleach and Burford, join the narrow-gauge system at Witney. This line also provides a central station at Cheltenham, and by a loop-line would be connected with all the other railways which touch the town.

Another line is "the Wilts and Gloucestershire Railway," to connect Chippenham and Stroud, *viâ* Malmesbury, Tetbury, and Nailsworth.

Besides the railway projects, there are a sprinkling of others, such as "the Tower subway," for making a subway under the Thames, from Irongate-stairs, near the Tower of London, to Horsleydown Old-stairs.

A bill is to be brought into Parliament for making a new bridge over the Ramsdale valley at Scarborough.

HIGHAM FERRERS CHURCH.

The formerly collegiate Church of St. Mary is one of the largest churches in the county, and, both from its fine proportions and its historical associations, is one of the most interesting. The church stands on the north side of its large churchyard, and forms the chief object of a most picturesque group of buildings,—the bede-house and chapel being on the south side, and the schoolhouse on the west side, memorials of its great benefactor, Archbishop Chichele. This great man was a native of Higham Ferrers, and was discovered and raised to eminence by William of Wykeham. He held the chancellorship of Sarum, the bishopric of St. David's, and finally the Archbishopric of Canterbury, from the year 1414 to his death, 1443. Chichele founded here a college for eight chaplains, four clerks, and six choristers. The remains of the collegiate buildings still exist, though almost in ruins, in the principal street of the town. For the use of the college he placed stalls in the chancel of the church. The tomb of the great archbishop is in the north transept of Canterbury Cathedral. It consists of an altar tomb, supporting an effigy, at the extremities of which are two polygonal towers, surrounded with rows of niches, with statues, and surmounted by a richly carved canopy, the whole being most richly painted and gilt. It has recently been restored by the Fellows of All Souls' College, Oxford, who have also taken in hand the restoration of the stalls in the chancel of the church in memory of their founder.

A brief description of the church will be necessary to understand the account of the portions restored. It consists of a nave, large north aisle, or, as it might be called, a north nave, chancel, and lady-chapel, at the east end of the north nave, of the same dimensions as the chancel itself, north and south aisles, south porch, and western tower. The earliest portions of the church date from the thirteenth century: it then consisted of a nave, north and south aisles, chancel, and west tower. The water-table of the old high-pitch roof still remains on the tower. The south arcade, south door of chancel, and part of the chancel walls are of this date. The tower, which had at that time no spire, fell in 1631, but was rebuilt similar to the old one, with the exception of the buttresses on the south side. The west door ranks among the finest works of art in the kingdom: it consists of a shallow porch, the outer arch of which is elaborately moulded and supported on shafts with elaborately carved capitals. Between this and the inner door the space is decorated with two small bays, by bold groining ribs, supported on corbels, below which are cusped pointed arcles. The inner doorway is double, divided by a small shaft: the heads of the openings are segmental, and ornamented, as well as the sides, with foliage and small figures. The central shaft supports the pedestal, on which stood a figure of Our Lord or the Virgin. The remainder of the tympanum is filled with circles containing sculptured subjects, illustrating events of Our Lord's life.

In 1290 the original north arcade and north aisle were taken down, and the present north nave and lady-chapel built. The west window and a window in the lady-chapel are of this date. About 1340 the church was again altered, the north aisle was built, the original high-pitch roofs of the two naves taken down, and flat roofs, with a clerestory, substituted, and new windows placed, with one or two exceptions, throughout the church, the original windows of the old north aisle being altered as at present existing. The spire was also built at this time. The only alterations effected in Chichele's time were the battlements of the nave and chancel, two windows, viz, one at the east end of south aisle, and the other at the west end of north aisle. The screens and stalls of the church are also of this date. There are several very fine brasses in the church, among which is one in memory of Thomas and Agnes Chichele, the parents of the archbishop: there is also a very fine tomb, with a brass (a later addition) between the chancel and lady-chapel.

The state of the church from the lapse of ages and neglect was deplorable in the extreme, and the roofs and walls were in such a state of decay and ruin as to be absolutely dangerous. In fact, unless something had been done, and that at once, the magnificent church of Higham Ferrers would have become a complete ruin. The interior was filled with old and inconvenient pews, while a huge west gallery blocked up the tower arch, and part of the windows in the clerestory were cut away, and filled in with modern sash windows.

The contract, which was taken for the first part of the restoration by Messrs. Ruddle & Thompson, of Peterborough, included the substantial works; viz, the re-building of the whole of the walls of the naves and aisles and porch, with the exception of the arcade between the north and south naves, with new roofs of oak to the entire church, including the chancel and lady-chapel. The old window jambs, heads, and tracery; the doorways, caps, bases, and mouldings of arcades; in short, every piece of old work that it was possible to reuse, was re-built in precisely its old position. The roofs were constructed as the old examples. One truss of the old roof remains at the west end of the nave. The chancel roof, which was comparatively modern and of a low pitch, cutting off the top of the east window, has been renewed, following the pitch and detail of that of the nave. Against the north-east angle of the tower a new staircase turret was built, terminating below the belfry stage, and surmounted by a figure of Chichele. In the course of the restoration a low door and a flight of steps were discovered, leading to a crypt under the east end of the south aisle. Owing to want of funds, the remaining works were delayed some time, but were again resumed by Mr. J. Howes, whose contract included the floors and the blocks of seats, and the relaying of all the passages of nave aisles and chancel with red, green, and buff tiles, in patterns. The tiles were made by Messrs. Maw, from the pattern of the old tiles which were found in the course of the works. The church was also fitted with a warming apparatus, by Messrs. Remmington. After a short interval the contract for the reseating was taken by Mr. Conquest, of Kempstone. The whole area has now been filled with open seats of English oak, the old bench ends and fronts, of which a few old examples remained, being taken as the pattern by which the new ones have been made, the tracery and carving in all of them being varied. The new pulpit, reading-desk, and lectern are also of oak, and elaborately carved from the architect's designs, and executed by Mr. Conquest. The old Early English font has been refixed on a new step, and placed in the south aisle. In addition to their former subscriptions, the Fellows of All Souls' College have re-

stored the stalls in the chancel, which were in a most dilapidated and dirty state, the oak used in the fronts and piecings being taken from the old oak of roofs. The screens of the chancel, lady-chapel, and aisles are also being restored by Mr. Conquest, under the architect's superintendence. The church is now lighted with gas: the gas standards, which are of iron and polished brass, are the gift of Mr. G. Bower, of St. Neots.

The ground outside the church, which had risen up high against the walls, has now been cleared away, and the paths laid with gravel round the church. The only portions of the restoration at present from want of funds left incomplete, are the altar and rail, and tiling of chancel within the rails and reredos.

The clerk of the works for the former portion of the works was Mr. Joseph Butler, and the whole of the restorations have been carried out from the designs and under the superintendence of Mr. William Slater, architect.

SHERIFF BELL ON ARCHITECTURE.

GLASGOW ARCHITECTURAL SOCIETY.

At the *conversazione* of this society various gentlemen addressed the meeting; amongst them Sheriff Bell, who said,—The more one reflected on the importance of architecture in modern times, the more one was convinced of the absolute necessity of seeing minds of intelligence and education applied to the subject. There was no art which so entirely combined the useful with the beautiful as architecture. When they found the comforts and elegancies of social life raised out of stone, and when, in addition to that, they found poetical effects given to that stone, so that when they looked on it the combinations were such that they excited noble and elevated emotions, they must all feel that architecture, which produces such results, was a great and most important art-science. He thought that all men who lived in cities were very much at the mercy of architects. It was in vain to lay out beautiful cities, fair streets and squares, and public places, if no more is to be done with those cities than to put up in them as houses certain bare walls with windows in them. No man who had any regard for the place of his own birth, or the progress of his own nation, but must wish to see its cities adorned in a far different way from that; and when they reflected on what were the great features of any city, they at once saw it was not a combination of stone and lime, but what made the city was its great architectural features. Even London itself,—when they thought of it, they thought of the great works of such men as Inigo Jones and Christopher Wren. Without St. Paul's, the noble Palace of Westminster, London itself would not be a capital worthy of this great nation; and let an architect in any city erect a grand and beautiful building, that city became consecrated and ennobled by that building. Cologne was a romantic city on the banks of the Rhine; but what would Cologne be if it were not for its sublime cathedral? Milan was one of the fairest towns of Lombardy; but were it not for that great cathedral dome, Milan would not hold the place it does in the estimation of mankind. The same might be said of St. Peter's, St. Paul's, and of every other great building. It was these great monuments of architecture that gave character and value to cities; and it was not those great buildings alone, but it was beauty of individual details in streets and other places of the city that made it a valuable and delightful city to dwell in. Then, again, when they looked at those scenes in valleys or by the hill-sides, where, after the bustle and fatigue of their daily life in cities the tired mind sought for repose, how unfortunate it was if they did not find that the most beautiful site was not adorned suitably, as it ought to be, with what were often called villas; but how, on the contrary, if they saw an appropriate building put down on a suitable site, they felt that architecture combined with nature, the whole forming one harmonious picture to gratify the human mind. Now, it was no mean task that the architect had before him. It was a very great and a very important one, and therefore required to have brought to bear upon it refined and educated minds. He had heard with pleasure that it had suggested itself to at least some of the members of the Society, and he thought it was a subject worthy of their consideration, that it would be right in Glasgow, looking at the progress of architecture amongst them, and looking at the many eminent architects who were starting up amongst them—it might be right to consider whether there should not be a chartered body of architects in this city who would admit to the membership of their body only after a stringent examination, and which would exact a due knowledge of the subject from parties who had the intention of becoming members of that incorporation. They had now in Glasgow some highly eminent incorporations, each of which, he had no doubt, had done great good. The Faculty of Procurators, for instance, had done much good in advancing legal knowledge. There were also the chartered accountants, who formed a most important body in a great commercial city, and he thought it might be equally satisfactory to see established a chartered body of architects. He by no means applauded giving such a body exclusive privileges. There might be men who would not seek to join them—men even of established reputation,—but membership in such a body would always be a test or security for the possession of ability in the profession. He was very glad to know that in this Society, although called the Architectural Society, other arts were conjoined, many of the members of the Society not being architects, but gentlemen belonging to cognate professions; and he was also delighted to see, from the many beautiful works of art exhibited in the hall, that the Society specially admired and cherished the noble art of sculpture. There was no more beautiful auxiliary to architecture than sculpture, more particularly ideal sculpture, which was perhaps the highest of all art. In the report which had been read that night allusion had been made to the decease of a very eminent architect, whose death was a great loss to Glasgow; and they might also allow him to allude to the death of another and younger man, who was not an architect, but a rising sculptor, in the presence of many eminent sculptors established among them. He thought the story of Mr. George Mossman's life was one full of the deepest pathos and interest. He was a young man of great natural genius, animated by fondness for his art. He went to London to prosecute his studies, studied there under Foley, and another great sculptor, carried off in the school of the Royal Academy a first prize, and returned with these honours to his native city, hoping to win further fame and honour here. He was not long here, however, before ill-health overtook him; and for several years he struggled on under his affliction, till at last, in the fair flush of early manhood, he sank into the grave. But he had left behind him those who were weeping for his loss, a widow and children, besides other friends. He had also left behind him works of ideal sculpture, which, he thought, displayed at once great genius and the promise of great power. The learned Sheriff then referred to several of the works of the late Mr. Mossman which were present in the hall, which the artist had not had time to execute in marble, eulogising these as exhibiting great power, and adding that it would be a graceful and good act for some of the merchant princes of Glasgow to throw a little sunshine into the sculptor's house of mourning by ordering some of these works to be put into marble. Sometimes but little attention was paid to rising merit, whether it be dead or living; and he besought those who were collecting works of art not at all times to seek works merely of the great artists who had achieved a European reputation, but rather to look for works of merit from young artists; and he assured them that, in purchasing these works and aiding these artists, they would find in many cases in the future that they had been "entertaining angels unawares."

CONGRESS OF GERMAN ARTISANS AT FRANKFORT.

The Congress of German Artisans was opened on the 24th of September. About 200 members from Central and Northern Germany responded to the invitations to take part in the discussions of this the second meeting of the kind that has ever been held in Germany. The members, however, represented masters of various arts and trades, rather than common workmen. The former constituted certainly the majority.

According to the *Social Science Review*, the subject first discussed had reference to a project for the formation of a general law that should be sanctioned by the State, for the trades of Germany. This project was adopted unanimously, the speakers seeming one and all to be of opinion that political economists, as a body, do not in any way understand the position and wants of workmen and of their masters. The next question discussed had relation to the most suitable methods for ameliorating the lot and position, in other words, the well-being of the workmen. The speakers were in favour of the continuance and preservation of the system of trades-freedoms, and held that a workman ought not to become a master until he had undergone an examination showing proficiency in his department.

On the following day, September 26th, the Congress discussed a project elaborated by the central committee of Hamburg, for securing a general organisation of every trade in Germany. The discussion on this project, which was very warm, was continued throughout the day, and was not concluded. On the 27th, the Congress came to a resolution in which it adopted the following essential point, included in the project that had been submitted:—"That masters ought to be protected in every way from any competition that may arise from their own workmen or from combined capital."

SOCIETY OF ARTS.

On Wednesday evening last, the 110th session of the Society was opened at the Society's house, in John-street, Adelphi; Mr. W. Hawes, the chairman of the council, presiding. The chairman delivered an address, in which he reviewed the past policy and explained the future intentions of the Society. He afterwards distributed the Prince Consort's prize awarded at the last examination, and the prizes awarded to the artist workmen who were successful competitors at the wood-carving exhibition held in June last.

The first-mentioned prize, which was 25*l.*, was awarded to Mr. Wm. Vaughan, aged 22, City of London College, clerk, who had obtained the first-class certificates in arithmetic, geometry, book-keeping, mensuration, algebra, trigonometry, and in conic sections. The names of the others we have already given.

The meeting-room has been decorated by Mr. Crace. We must see it again before giving any opinion upon it.

BELFAST.

A floating and a graving dock, of extensive size, are about to be constructed here, the successful contractors for the graving dock being Messrs. Thomas Monk & Co., of Birkenhead; and for the floating dock, Messrs. Smith, Kent, J. H. and T. L. Browne, of Belfast. The plans and other particulars have been prepared by Mr. Wm. H. Lizars, the resident engineer (under whose immediate supervision the works will be carried on), and approved of by Mr. George Smith, C.E., and conservator of the port and harbour. When these improvements are completed, Belfast will be enabled to give accommodation to a much larger class of vessels than at present, a circumstance that will aid to a great extent the marine interests and general commercial prosperity of this enterprising port.

THE WALLRAFF-RICHARTZ MUSEUM, COLOGNE.

The edifice illustrated was erected at the cost of Herr Richartz, a private citizen of Cologne, Germany, to receive the works of art given to that city by Professor Wallraff. It stands in an open plot of ornamental ground adjoining the Minoriten Kirche, and so can be well seen. It may be taken as a specimen of the kind of Gothic heretofore designed by the modern architects of Germany.

The scale attached to the plans is in Rhineland feet. The Rhineland foot is to the English foot as 1·0298 to 1. The collection consists mainly of early specimens of the Cologne School of Painting, having considerable interest. In the basement are Roman antiquities found in and near the city,—the *Colonia Agrippina* of the Romans.

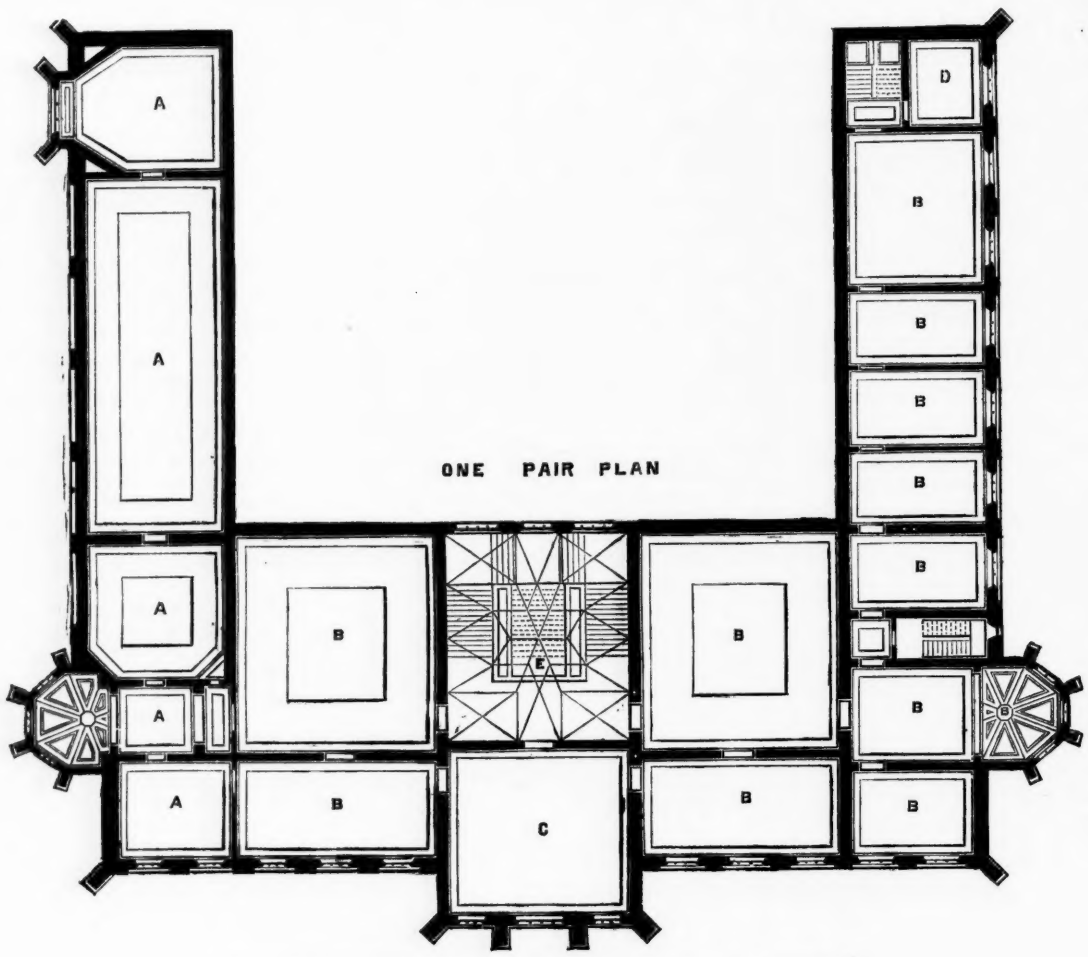
REFERENCES.

Ground Plan.

A. Concierge.
B. Ancient Armour and Arms.
C. For Mosaics.
D. Ancient Sculpture.
E. Permanent Exhibition.
F. For Curator.
F (Left hand). Modern Paintings.
G. Ancient Furniture and Earthenware.
G'. Stained Glass.

One-Pair Plan.

A. Paintings of the old Cologne School.
B. Modern Paintings.
C. Room for Royal Pictures.
D. Curator.
E. Staircase with Frescoes, by Edward Steinle.



THE WALLRAFF-RICHARTZ MUSEUM.

THE WALLRAFF - RICHARTZ MUSEUM, COLOGNE.

AGRICULTURAL HOTEL AND FARMERS' CLUB.

Messrs. Trollope's tender of 23,340*l.* has been accepted for the above building. The work of clearing the ground is to be commenced forthwith, and the structure is to be handed over to the directors by the end of September in next year.

The building occupies one entire side of Salisbury-square, Fleet-street, which site was selected mainly on account of its central position, and the quiet, for which, although in the very heart of London, the neighbourhood is noted.

There are upwards of 100 rooms in the hotel, and the whole of the arrangements and the character of the exterior are convenient and substantial, but inexpensive. There are the usual public rooms for the hotel, and a large room for public dinners, upwards of 70 feet long by 30 feet wide. There are also club, coffee, dining, and reading rooms (the Club alone bringing to the hotel the custom of 600 members). The remainder are chiefly bed, dressing, and bath rooms, common to both hotel and club.

The architect is Mr. John Giles, of London. It may be mentioned that no part of the contract sum is taken in shares.

NEW YORK NATIONAL ACADEMY OF DESIGN.

At the end of last month the corner-stone of the new building for the National Academy of Design was laid with ceremonials befitting the occasion. The building is to be erected on the north-west corner of Fourth Avenue and Twenty-third-street, in the midst of a tract which was occupied by farm-yards, meadows, and orchards when the National Academy was founded. The New York *Independent* gives the following particulars:—

"The design of the new Academy is a novelty, and the architect, Mr. P. B. Wight, a graduate of our Free Academy, has availed himself of the abundance of varicoloured building material which we are blessed with to introduce effects which will be startling to eyes accustomed to the brown monotone of our street façades. As we understand it, the basement is to be composed of alternate bands of greywacke and the grey marble of Westchester, *while the front is to be of white marble. Our National Academy will be able now to boast of a domicile of its own, which is more than the Royal Academy of London, its senior by nearly a century, has ever been able to do, with all the patronage and the prestige of royalty attached to it.* Our National Academy has led a sort of vagabond existence hitherto, moving about from one loft to another all over the city, until at last, by the energetic efforts of its members, and the munificence of some of our art-loving people, it will be able to boast of a local habitation of its own. The institution had accumulated some 60,000 dollars, and this sum was increased nearly threefold during the past two years—the years of our great consuming war, be it remembered,—by creating fellowship members."

Our authority adds:—

"The Academy, we are happy to know, will be built, and we trust it will be so managed as to lead to the more liberal cultivation of art among us; for, unless it shall do that, it will be of no more importance to us than any other building with a showy front. That it will be so conducted, however, we have great hope. The little town of Dusseldorff, in Germany, has a school of art. They talk, too, of the Brussels' school, the French school, and so on; but who has heard of the New York School of Art, or the American school? Yet why not? What is Dusseldorff compared with New York; or Belgium compared with our America?"

WATERWORKS.

Application is to be made to Parliament next session for the supply of the town and neighbourhood of Whitby with water by a limited company. The water is to be gathered into reservoirs from several local streams called the Hill Slack, the Lythe Beck, the Grand Beck, &c., and conducted by conduits.

A similar application is to be made by the North Cheshire Waterworks Company, under a new name, for the supply of the parishes of Bowden and Ashton-upon-Mersey, Northen, Warburton, and Lymm, all in Cheshire, with water by a conduit or line of pipes, commencing in the township of Stretford, in the parish of Manchester, and county palatine of Lancaster, by a junction with the main of the Manchester corporation.

A public meeting has been held in Huntingdon, at which it has been resolved to have a system of water-works for the town. The estimated cost is about 4,000*l.* Plans were presented by Mr. Hutchinson. A provisional committee was appointed to inquire as to the objects of the meeting.

The Halsted Water-works are now in operation. The general works have been carried out by Mr. Tanner; but all those immediately connected with the well were executed by Messrs. George Wood & Son, of Chelmsford. Considerable difficulty was experienced in sinking the shaft of the well to the specified depth, the lower 10 feet dipping into a very strong spring, so that relays of men were employed day and night pumping to keep the water down. This well is 140 feet deep, 5 feet in the clear, and bricked 9-inch work in cement from top to bottom. There is also an adit horizontally 110 feet down 15 feet long by 6 feet diameter in the clear, also bricked with 9-inch work in cement. The boring is continued down from the bottom of the well through the elastic clays to 310 feet into the chalk, and the water is found in a bed of soft chalk, separated from the hard stone chalk by a thin hard vein nearly resembling china. The supply is said to be abundant. The pumps are worked by a 10-horse engine, plied by Messrs. Whitmore & Sons, of Wickham Market; and the water is pumped into a cistern 12 feet high, placed upon a tower 20 feet high, and the base of the tower is 102 feet above the level of the water at the Mill Head: there is, therefore, a pressure at the bridge of 134 feet when the tank is full: the tank holds 24,000 gallons.

THE LAND REGISTRY SYSTEM.

The *Times* announces that the new Land Registry system has *not* proved a failure, as had been generally supposed. Of course, during the first year it has been up-hill work in introducing a system entirely new; but good progress has been made. There have been forty-two applications for registering property worth a million sterling, nearly all of which have been entertained: a few did not come under the provisions of the new law. No serious "difficulties" have been encountered in working the law: no very heavy expense has fallen upon those who have taken advantage of it. We have not yet looked into the results of its working for ourselves, but may do so presently. What the uses of the system are this extract will show:—

"The operation of the new system is shown by what has actually been done. For instance, an estate of the value of 30,000*l.* was registered, and was then sold by the registered owner. The only title required was the production of the certificate of title,—the conveyance was in a few lines,—which was carried to the office and entered on the register in a few minutes. The new purchaser mortgaged the property, and the same simple process effectuated the charge. The whole affair is thus one of hours instead of months, and the cost is, of course, regulated by the simplicity of the transaction. According to the old system, in such a transaction as this the seller and the buyer would each have had his solicitor and conveyancing counsel; long abstracts of title would have been prepared and delivered; requisitions would have been made; and, after months of delay and at a commensurate cost, that part of the affair would have been finished. But then the mortgage affair would begin; and again there would be the two solicitors and counsel, more abstracts, more requisitions, more delay, and more expense. It is gratifying to find, by actual experience, that the new system which introduces such a beneficial change in one of the great departments of the law is capable of practical operation."

DRINKING-FOUNTAIN MOVEMENT.

Durham.—Within a short time three public drinking-fountains have been opened in the city of Durham. The first is situate at the foot of Elvet Bridge; the second in the Market Place; the third on the North-road. This last has just been formally dedicated to public use. The fountain is built upon a portion of ground situate between Atherton-street and the pier of the North-Eastern Railway viaduct. It is built of Dunn House stone, and stands about 12 feet high by 8 feet wide, the centre portion standing prominently forward from a recessed retaining wall, rising from a moulded base forming a gable over a Gothic arch, supported by two polished red granite columns with carved capitals. This gable is enriched with raking mouldings and mitres into an ornamental hipped roof, supported by enriched corbels, and finishes with a finial composed of water-lilies, carved on the face of a pointed embrasure apex: moulded embrasures, with sunk circles and trefoils, recede on each side in the form of an obtuse pyramid, terminating with semi-buttresses, giving a finish to the whole. In the Gothic arch, between the granite columns, is an Aberdeen gray granite panel. In the tympanum is carved an ornamental quatrefoil, with the city arms in the centre. Below is a conventional grotesque gargoyle, designed out of foliage, and carved in a circle in the centre of the panel. Out of the mouth of this gargoyle the water flows into a polished marble stoup, and is conveyed to another gargoyle in the dog-trough below. The dog-trough is formed out of the base of the fountain. The water has been conveyed in pipes from a spring known as Flass Well, at the base of the Red Hills. The type of the design is Early French. The whole has been designed and carried out under the superintendence of Mr. T. C. Ebdy, of this city, architect. The carving has been executed by Mr. W. Gainford. The contractor was Mr. J. Charlton.

Northampton.—The Isaac fountain and lamp have been inaugurated. They are in the sixteenth century Italian style, of iron, but with enrichments of bronze. The plan at base of the structure is square, but with ornamental trusses at the canted corners. On the north and south sides are drinking-fountains, and on the east and west sides are shields, with the inscription. Over the fountains and plates is an entablature, with emblematic masks, and surmounting this, on shields, are the coat of arms of the borough and the crest of the donor, Captain Isaac, with scroll for mottoes, interlaced with ornaments. On the top of the entablature, and over the trusses, stand the four fountain basins, with tazzas. The water springing from these will fall into the basins, and from thence through the masks, into the basins of the drinking-fountains. The gilt bracketed globe lantern is 4 feet in diameter, surmounted with a Maltese cross; and the stand of it rests upon the capital of the ornamental column. All the ironwork is bronzed, and is raised upon four steps of grey granite. The total height of the structure is 45 feet, and it is 19 feet across the base.

Leamington.—The public fountains here have also been opened for public use. These public fountains supply the saline Spa or Leamington waters.

SCHOOLS OF ART.

The Coventry School.—The new school building just completed, and an account of which was given in the *Builder* of 31st of October, has been formally opened with a *conversazione*, at which Lord Leigh, the lord-lieutenant of the county of Warwick, presided. The Right Hon. C. B. Adderley, M.P., delivered a long address. He complimented the people of Coventry on the spirit they had shown at a time of depression of trade, in looking out for new modes of employment, and in founding such an institution as that just opened. The elements of success in every art, he said, was a knowledge of the first principles of design. He looked on the School of Art as a nursery for that skill which would insure mercantile success in art. Mr. Gladstone in his magnificent oration at Burslem had dwelt upon the relations of utility and beauty; but even he, in speaking on that subject, fell short of the fulness of the truth. He fell short of the full conception of beauty, which, after all, depended more on adaptation, fitness, and propriety, than on lines, colour, or ornament; the last being a mere addition, dependent for its own beauty on its appropriateness to the main design. All the works of art in Coventry had beauty as a primary ingredient in their value; and there could be no doubt of the advantages it might reap from a good school of art. He had heard the complaint that the Department of Art at Kensington engrossed too much of the money, granted for the purpose of encouraging art, to themselves. If this were the case, let the provincial schools of art, if they felt aggrieved, cry out in time. At the same time they should not forget that their objects were identical; that the Central Metropolitan Association must naturally engross the largest part of the grant; that it must have a museum for the use of the whole country; and still more a training institution, on a large scale, and of so high a standard as to be able to furnish all the provincial schools with masters. Moreover, the aid the Treasury might give, after all, should be nothing more than a subsidy, for the strength and life of these institutions is in their local support. He had heard many complain of the new minute on the subject of schools of art. He thought the fear and alarm which it had created would be found scarcely justified in experience. Of this he was firmly convinced, that it was in the right direction; inasmuch as it shook off a too great con-

nexion between Government and local institutions. The meeting was afterwards addressed by Sir Joseph Paxton, M.P., and others.

The Bath School.—The annual distribution of prizes to the successful pupils of this institution has just taken place in the Guildhall. The Mayor, who presided, in opening the proceedings, said that he was sorry to learn that this valuable institution was not sufficiently supported, and that the funds were at a very low ebb. He trusted that some steps might be taken to keep it, as it should be, in a state sufficiently active to afford the instruction which, if lost, would be very much regretted by his fellow-citizens. The Rev. E. D. Rhodes, the president of the institution, then addressed the meeting. This year, he said, they were going to have the British Association for the Advancement of Science here, and they not only expected a right hearty welcome, but they expected to see that there was much of intellectual and artistic talent amongst the population; and therefore it would be, as he had said, a disgrace to Bath to have to inform such an association that during the year the School of Art had become bankrupt. At present the liabilities of the society were 127*l.* 7s. 9½d.; and the total amount of the assets, 68*l.* 15s. 6d., leaving a deficiency of 58*l.* 12s. 3½d.; so that the debt of the society in 1863 was about the same as it was in 1861. It might be said that their discouragements were no greater than before; but he could not think so, for, independently of the falling off in the subscriptions, there was, which was more serious, a considerable diminution in the number of their pupils, and of that class, too, which, in a pecuniary sense, assisted the society the most, and whose attendance in other respects was most desirable—he alluded to the lady pupils. They did not feel that this falling off was to be ascribed to any defect in the working agency of the society; for he believed that it was owing to another institution having been opened, which had ventured to take upon itself the title of the "Bath School of Art,"—an instance of unjust assumption, the party knowing that there was a Bath School of Art existing at the time, under the direct sanction and approval of the Government. Such an institution having been opened in a part of the town more come-atable and in a more favourable locality than that occupied by the rooms of their institution, it was nothing extraordinary that it should have taken the wind out of their sails, and reduced the number of their better-paying pupils. Still, they had at the present time no less than 1,000 pupils in connexion with the institution. That the institution should conduct the artistic education of a thousand pupils at so small a rate that it was not able to meet its expenses, must be an appeal utterly unanswerable to all right-feeling, generous-hearted persons in the city of Bath. The payment from pupils met the expenses of the institution within from 15*l.* to 20*l.*; but besides that there was the debt of 58*l.* If the debt were not liquidated, and they could not see their way to equalize the income and expenditure of the society, then by the 25th of next March its doors would be closed. Mr. C. E. Davis, hon. secretary, observed that if the class of lady pupils were increased to thirty, they would be able to pay the expenses and to carry on the school.

SANITARY IMPROVEMENT OF TOWNS.

Sunderland.—An inquiry having been ordered by Government, some time ago now, as to the expediency of purchasing land to extend the People's Park of the borough, a paper was read by Alderman Williams, chairman of the Sanitary Committee of the Corporation, before Mr. Rawlinson, the Government commissioner; and the result of the inquiry was that Mr. Rawlinson reported in favour of the proposed purchase; and Sir George Grey has confirmed the report, by which 10½ acres will be added to the present park. The substance of the paper alluded to has been printed, together with a special report of the Sanitary Committee on the health of the town, with reference to the increased disease and death attributed to the sanitary works, as we have already stated, but which was clearly shown in this report to have prevailed precisely where the sanitary works had not yet been carried out.

Liverpool.—The corporation have given notice by advertisement of their intention to apply to Parliament in the ensuing session for power to purchase, alter, demolish, or otherwise dispose of courts and alleys of unhealthful character within the limits of the borough, as already announced from the proceedings of the town council.

Keswick.—At a recent meeting of the Keswick Board of Health, the clerk read a letter from Mr. Simon, of the Medical Department of the Privy Council Office, expressing the opinion of the Lords of her Majesty's Council, that, notwithstanding the existence of a Board of Health in Keswick since 1848, no sanitary arrangements, with one important exception, had been carried out. They directed attention to a copy of the report of their medical inspector in respect to Keswick, and wished to know what measures the board intended to adopt to remove the present grounds of complaint. The report of the Keswick Sewerage Committee was then read, from which it appeared that the clerk had written to Mr. John Lawson, C.E., to inform him of the movements of the board, to ask him what necessary surveys and plans would be required, and on what terms the necessary amount of money could be borrowed from the Government, and for any other needful information. In his reply Mr. Lawson stated that the Public Works Commissioners lent money to local boards at 5 per cent., the principal being repaid by twenty yearly instalments. The committee recommended the engagement of Mr. Lawson as engineer, and that he be requested immediately to prepare the necessary plans and estimates. The report of the Sewerage Committee for carrying out the drainage of the town was unanimously adopted.

Hexham.—Mr. John Lawson, C.E., is at present engaged in laying down water and drainage works for Hexham, which has fought almost as long for the carrying out of the Health Act as Keswick has done.

Houghton.—A meeting has been held in Houghton, to consider the sanitary condition of the village, as reported upon by Dr. Wheatley to the local board of guardians; to devise means for the removal of the nuisances pointed out therein; and to take such steps as will ultimately place the village in a cleaner and a more healthy state than it is at present. A committee was appointed to arrange a plan for carrying out a proposal to bring a covered drain up from the Beck to a certain point, and then to allow house-owners to drain into it.

Shrewsbury.—At a recent meeting of the town-council a report of the Improvement Committee was read, which stated that "in pursuance of the order at the last council meeting, a specification was prepared by Mr. Curley for executing the main sewer between the English-bridge and Preston-boats, and tenders were duly advertised for, and the following were received and considered by your committee, viz.:—

Moore	£10,834	12	6
H. & W. Carter	10,970	0	0
Field	12,608	3	0
Moxon & Co.	18,804	8	8
Dixon & Sleight	19,750	0	0
Thomas	30,890	16	0

These several amounts included compensation for land. The estimate of Mr. Curley amounted to 10,408*l.* 17s.; and for land and wayleave, 222*l.* 14s.: total, 10,631*l.* 11s. The committee do not feel justified in recommending such an outlay to be incurred. They had reason to hope from the report of Mr. Curley, of December, 1861, that 7,800*l.* would have been sufficient to have constructed the main sewer in question, and also effectually to drain the Coleham and Abbey-foregate districts. It will, however, be in the recollection of the council that an alteration was made by Mr. Bazalgette in the size of a portion of the tunnel suggested by Mr. Curley, of from 4 to 5 feet in diameter, which, of course, would add to the expense then contemplated by the latter gentleman. It will now be for the council to decide as to what course shall be adopted with reference to those portions of the borough which are without sewerage and require immediate attention, and also as to utilizing as far as possible the present sewerage."

HARBOURS AND BREAKWATERS.

Downs Harbour and Docks.—At a special meeting of the promoters of this project, held in Deal, Mr. Alfred Giles, C.E., attended and exhibited his plans. They consist of a basin of 30 acres, to be constructed on the waste ground near Sandown Castle, to be connected with Sandwich by a cut, 100 feet wide, through which the waters of the Stour can be diverted, when necessary, to flush out the entrance of the basin. The cost is estimated at about 200,000*l.* The engineer explained that the outer basin would be always open, and have 10 feet of water at the lowest spring tides, and the entrance to the sea protected by two arms or piers. The drainage of the marshes would not be interfered with; and the waters of the Stour would be so seldom required for flushing, that the river above and below Sandwich would not be injuriously affected. It was resolved to adopt the plans and estimates of the engineer, and apply to Parliament for powers to construct the necessary works.

The Tees South Gare Breakwater.—The foundation-stone of a breakwater has been laid at the mouth of the Tees. The breakwater is intended to extend seawards upwards of two miles, and when completed will form a harbour of refuge during the prevalence of easterly gales. The materials of which it is composed are the refuse of the numerous furnaces for smelting iron, which have sprung up with such marvellous rapidity in this neighbourhood during the last few years. The breakwater now stretches from the limit of high water to a distance of a mile and a half, and it is intended to carry it upwards of a mile farther. The contractor is enabled to execute 10 yards in length per week, tipping about 600 tons of material per day. At the end of the South Gare it is intended to build 100 yards of ashlar stone, and upon this portion an iron lighthouse will be constructed, showing light 60 feet high from the top of the breakwater. The breakwater will be 5 feet above high water of spring tides, and it is expected it will run down at a slope of 6 to 1 to the sea-side. Training walls will also be constructed so as to direct the current on the bar. When the North Gare is constructed there will be a channel about 700 yards between them, and the scouring effect will be such as to fix as well as deepen the bar, which is at present of a very shifty character. The cost of the South Gare breakwater, had it been constructed of stone, would have been about 600,000*l.*; but, owing to the facilities already described, its actual cost is estimated at little more than 100,000*l.* The sum will be advanced on loan by the Exchequer Loan Commissioners, on the security of the tolls on shipping levied by the Conservancy Commissioners. Mr. John Fowler is the engineer of the Tees Conservancy Commission; and Mr. John Anderson, contractor of the works.

Harbours and Docks in South Wales.—Efforts are being made at present to increase the harbour and dock accommodation at the different ports of South Wales, and more especially at Llanelly, Swansea, and Milford Haven. The trade of Swansea has shown such remarkable activity and increase within the last few years, that it has been found desirable to take measures with the view of deepening the entrance channel, the extension of the western pier, the alteration of the east pier, and the erection of the requisite lights. Mr. Abernethy, the Harbour Trust engineer, estimates the cost at 30,000*l.* The Harbour Trust of Llanelly have also seen the importance of increasing the floating accommodation at that rapidly rising port. The Llanelly Railway and Dock Company have agreed to carry out the desired extensions and improvements, provided the Trust will give certain guarantees in return. These the Trust have consented to give. An Act was obtained last session for the construction of docks at Milford Haven, and it is rumoured that the London and North-Western Company are not unwilling to lend their aid to the project.

FIRST WIRE SUSPENSION BRIDGE IN BRITISH COLUMBIA.

Trutch's Wire Suspension Bridge over the Fraser, near the Indian village of Spuzzem, by last despatches was just about to be thrown open to traffic. The bridge crosses Fraser River at a point three-fourths of a mile below Chapman's Bar.

It is situate at a contraction of the river, where the bed-rock rises almost perpendicular on both sides, the towers springing up almost immediately over the water, and the bridge having a clear span of 268 feet. At low-water the roadway of the bridge will be 90 feet above the stream, and the highest rise of this year's water was 26 feet below the lowest point of the bridge.

The timber for this work was cut in the forests near the spot, and all the sawing was done by hand. The tower timbers are each 20 inches square. Supporting the cables are sixteen of these sticks, each 26 feet 6 inches long, four sticks being framed together by means of fourteen girth timbers and seventeen 1¼-inch wrought-iron bolts, spread at bottom, resting on heavy sills, and coming together at the top, forming a pyramid of massive timber. On the summit is fitted a heavy cast-iron saddle, covering the whole of the timbers, and keeping the cable which rests on it in position: this arrangement forms one of the towers, there being in all four of them, two at each end of the bridge. These towers are erected on granite

piers, 32 feet long by 12 feet wide on top. The stone was quarried out at the spot, and the lime employed was obtained six miles from the bridge, where a very good quality of limestone had been discovered in grading the road.

The cables, of which there are two, are each 4½ inches in diameter, 528 feet long, and are composed of 1,264 wires, laid up in linseed oil, and protected externally by a coating of tar, pitch, and oil, boiled together, and payed on while hot: each of these cables weighs twelve tons. The current at this point when the river is high is extremely rapid and dangerous. A small line ½-inch thick was first taken across by means of a canoe going a long distance up the river and dropping down as it crossed; then a stronger line was taken across by means of the small one; and finally a wire cable, 1⅜-inch in diameter, was placed in position and firmly anchored on both sides of the river: by means of this small cable the larger cables to which the entire bridge is attached were taken over and put in position.

The designer and constructor of the bridge was Mr. A. S. Hallidie, of San Francisco. The entire cost of this bridge was 30,000 dollars. It is to be called the Alexandra Bridge. With a load of 4½ tons passing over it, it deflected only one-eighth of an inch, according to the measurement of Lieut. Palmer, R.E.

CHURCH-BUILDING NEWS.

Lowestoft.—The spire of the parish church is much out of the perpendicular. Mr. J. L. Clemence, architect, was consulted upon the subject, and under his supervision the spire has been raised 8 inches at the base, on the south-east corner.

Brandeston (*Suffolk*).—The mortuary chapel and burial-ground of Brandeston Church have just been consecrated. The church has lately been restored, at a cost of between 1,000*l.* and 2,000*l.*, defrayed by Mr. Austin. The mortuary chapel is built of red brick and black mortar, with small black bricks inserted at regular distances in diagonal lines, and there is a buttress at each corner. The chapel stands east and west, and its length is 33 feet, and width 18 feet, fitted with a reading-desk and movable benches, and will afford accommodation for about eighty people. The architect is Mr. Phipson, and the work here, as well as at the church, was done by Brandeston tradesmen, Bedwell & Emeny.

Holbrook.—After undergoing considerable improvement and additions, the parish church of Holbrook has been reopened. The chief addition to the building consists of a new north aisle, corresponding in extent with the older one on the south side: it is constructed with rubble walls, with a slated roof, which is within a foot or two of the top of the wall of the nave, so that it looks as if a lean-to of a more substantial and artistic character had been stuck on to the old building. The church is now benched throughout: the benches are of pine, and instead of being stained or varnished they are hand-polished. The new aisle is lighted by three windows in the northern wall, and one at the western end, where there is also a new door. The style is the transition from the Early English to the Decorated, and in this respect the architect abstained from making it correspond with the old south aisle, which is a poor specimen of the Perpendicular style. In the place of the window which formerly disfigured the chancel is an east window, with three lights, in the same style as the north aisle, presented by the pupils of the rector of the parish, the Rev. F. C. Childe. In the southern wall of the chancel a stained glass window is to be placed, by Mrs. Burton, of Holbrook, in memory of her son. A large new vestry has been added, the doorway to which was formerly a recess in which stood an altar-tomb, but which was made into a doorway in 1824. Beside the door is a niche, apparently a piscina, and while the builders were at work this was opened, and a broken pot or urn was found, in which were remains, proved by analysis to be those of a human heart. The architect intends to submit these remains to the Society of Antiquaries, after which they will be replaced. Mr. R. M. Phipson, of Ipswich and Norwich, was the architect, and the contractor was Mr. Ringham, of Ipswich. The total cost of the alteration will be about 900*l.*

Colchester.—The new district church of St. John the Evangelist, Ipswich-road, Colchester, erected for portions of the six parishes of All Saints', St. Botolph, Greenstead, Milend, Ardleigh, and Langham, has been consecrated. The church is situate about two miles from Colchester, on a plot of ground given by the Countess Cowper, with a burial-ground and site for the parsonage. It is built in the Decorated style, in its earlier period. Brick being the material of the district, it was thought better to adopt it if possible in preference to stone from a distance. The prevailing colour of the exterior brickwork is red, with bands of yellow stocks, the arches of the windows being of red and black, and the windows of Ancaster stone. The principal front of the church, which faces the Ipswich-road, is surmounted by an octagonal bell turret. The entrances for the congregation are at this end, through the baptistery, which communicates with the nave by an arch. The columns to this arch and likewise the windows to the baptistery are of slate with stone caps and bands. The walls of the nave as far as the window-sills are of red brick; the upper portions principally of yellow stocks with bands of red. The seats in the nave are calculated to hold 148, and are entirely open. On the south chancel wall is placed a memorial brass with this inscription, "This chancel was built and decorated, and a portion of the nave also built by a fund raised to the memory of the Rev. James Thomas Round, A.D. 1863." The two painted windows on each side of the brass illustrate various offices of the ministry as set forth in the life of our Lord. In the lower medallion on the left hand of the brass is the Baptism of Jesus; in the upper, the Sermon on the Mount: on the right side of the brass the lower medallion represents the institution of the Holy Communion; and the upper one the charge to Peter, "Feed my sheep." In the heads of these two windows are angels bearing scrolls. The side windows of the sacrarium represent the four Evangelists, and the large east window the Ascension. Above all are three angels bearing scrolls. These windows are from the manufactory of Messrs. Heaton, Butler, & Bayne, of London. In the chancel arch and the arch for the east window are introduced small columns of English marble, red and green. The architect is Mr. Arthur Blomfield, of London. All the woodwork of the church has been executed by Mr. J. Seex, builder; and the brickwork by Mr. G. Crow, builder. The total cost is about 2,000*l.*

Renhold (*Beds*).—The parish church here has been re-opened. Amongst the improvements may be enumerated the removal of pent-up pews; the restoration of the north door, which was plastered up level inside, and the outer recess used as a receptacle for fuel; the removal of the font to its proper situation; and the removal of the pulpit from the nave window to its place by the chancel arch. The nave and aisle have been fitted up with open unstained deal seats, and the floor laid with red and blue Staffordshire tiles. The prayer-desk has been constructed of old open oak tracery found in the church. Three windows in the nave have had new mullions and tracery. The old pulpit has been re-erected, but upon a new base of oak. The east end of the nave has been entirely rebuilt, as the chancel arch was in a dilapidated condition, and the arch has been raised 1 foot 9 inches above the former height. The low old plastered ceiling of the chancel has been removed, and a new open roof of corresponding pitch with that of the nave has been substituted. The floor is laid with Minton's encaustic tiles, and the kerb to the priest's step is of black marble. The windows of the chancel are new, and filled with crystal glass, with cathedral tinted borders. The exterior of the church has been freshly pointed throughout.

Woodstock.—The new Union Chapel and the cemetery for Woodstock have been consecrated. The workhouse chapel has been built by Mr. Franklin, of Deddington, for 495*l.*, which includes the necessary fittings. The stone was mainly supplied from the quarry of the Duke of Marlborough, and the plans were gratuitously furnished by the diocesan architect, Mr. G. E. Street, on one condition, that the building, if possible, should be consecrated.

Newbury.—The chancel of Newbury Church has been re-opened. The groundwork of the reredos is gold, with emblematical devices of the Four Evangelists and the Lamb, surrounded with a crowned monogram, "I. H. S." Carved on the south side of the chancel there are sedilia, with three panels; and on the north side a credence-table, with a carved canopy and finial. The panelling is of Bath stone, with alabaster, over which are ribbons with different texts. An archway has been thrown from the north vestry into the chancel, for the use of the choir. The steps are black marble, with encaustic tiles of various patterns, from Messrs. Maw, of Broseley. The roof is of oak, the pendants to the bonds being in carved work. On the exterior of the chancel, the walls and the gable end are enriched by a battlement of stone cornice, and a cross at the east end. The drawings for the above work were by Mr. H. Woodyer, of Grafham. The contractors for the whole works were Messrs. Adey & Son, builders, Newbury; Messrs. Wheeler & Sons, of Reading, for the stone work; and Mr. Biddis, of Newbury, the plumbing and decorating; Mr. Nicholls, of London, for the carving. Mr. J. Walker was clerk of the works. The cost of the restoration will amount to about 1,500*l.* The new window at the east end of the chancel has been constructed at a cost of about 200 guineas. The tracery of the window being in two compartments, the subject, of necessity, has been two-fold also; and the scenes selected have been the Crucifixion, and the Ascension of our Saviour. The whole has been executed in a slightly Conventional style. The window was designed and carried out by Messrs. Hardman, of Birmingham. The organ has been improved at a cost of about 220*l.*

Reading. — The first stone of All Saints' Church, Reading, has been laid on Downshire-square Estate, Bath-road, by the Bishop of Oxford, amid a large concourse of people. The edifice will be in the Decorated style. The plan consists of nave and aisles, north and south transepts, chancel, with aisles, tower, and spire, vestry, with heating chamber under. It is to be built of Pennant stone, with Bath stone dressings exteriorly, and the interior will be brick. The whole cost will be about 9,000*l.*, but only part is proposed at present to be carried out; viz., the chancel and aisles, transepts, and one bay of the nave, at the cost of 3,888*l.* The architect is Mr. J. P. St. Aubyn, of London; and Messrs. Wheeler & Sons, of Reading, are the contractors. The site in Downshire-square is the gift of the Conservative Land Society.

Windsor.—The Royal Chapel in Windsor Great Park has been consecrated. With a view to the convenience of the various servants of the Crown resident throughout the Park, Her Majesty has remodelled and enlarged this chapel, and has placed in the chancel a stained glass window as a memorial of her mother, the Duchess of Kent.

Hound (*Hampshire*).—A church is to be built at Sholing, in the parish of Hound. Houses are springing up in all directions, consequent upon the building of Netley Hospital, and of the Southampton and Netley Railway being about to run through the parish. Mr. Chamberlayne, the lord of the manor, has given a site of 2½ acres in extent, situate about a quarter of a mile eastward of Miller's Pond. It is proposed to erect the church in the Norman style of architecture, and capable of containing 500 persons. It will be so built as to be enlarged at any future period, if requisite. The required sum is 1,250*l.*

Tunstall.—The spire of Christ Church, Tunstall, has just been restored. In May last 18 feet of this spire were struck off by lightning. The spire has been rebuilt, and is 4 feet higher than it originally was; and, instead of the large iron sheath and cross which formed the terminal, a copper ball and vane have been substituted. Two scaffold poles were fixed for the raising of the stones, and a small stage screwed to the spire for standing upon to set the stones. This was all the scaffolding used, although very large stones were raised to a height of 115 feet. The four pinnacles which were damaged by a severe gale, and taken down several years ago, have been replaced. The contractor for restoring the tower and spire was Mr. George Frith, builder, Coventry; and Mr. Ralph Dain, of Burslem, was the architect.

Pontlottyn.—The new church of Pontlottyn has been consecrated by the bishop of the diocese. The church is in the Early English style of Gothic architecture, and contains a nave, north and south aisles, an apsidal chancel, a south chancel aisle, and a vestry, with a room for the heating apparatus underneath, also a bell-turret over the chancel arch. It is built of native stone, with windows and bands of red brick. The nave arcades have each three wide arches of red brick and Bath stone alternately. The pillars are of stone from the Bridgend quarries, the colour of which contrasts with the Bath stone. All the seats are open low benches. The pulpit is of Bath stone, circular, and having an open arcade with Bridgend stone shafts. Beside the font there is a baptistery provided for the immersion of adults. It is approached by steps and lined with Godwin's tiles. A large white cross of tiles is laid on the floor of the baptistery, going the whole length and width of it. The altar is of considerable size, and vested with a green frontal and a red superfrontal. The chancel is provided with choir seats, sedilia and credence table, and altar rails. The roofs are of open timber of stained and varnished deal. There are 349 sittings. The building was designed

by Mr. C. Buckeridge, of Oxford. The builders were Messrs. James & Price, of Cardiff. The cost was about 2,500*l.*

Blackpool.—Arrangements are in progress for replacing the temporary iron edifice for Christ Church with a permanent and more ecclesiastical structure. The new building is to occupy a site at the corner of Parker-street and Queen-street, near the existing parsonage. The accommodation will be for about 1,000 persons. The architect who has been appointed to carry out the work is Mr. J. M. Taylor, of Manchester.

Kendal.—The restoration of Kendal Parish Church is progressing. The whole of the roof over the inner south aisle, including that over the Strickland Chapel, has been restored, and is now quite finished. It is formed of Memel timber, and divided into equal compartments by nineteen principal rafters moulded and placed transversely, which are crossed longitudinally in the centre by a moulded purlin or rib. Every alternate rafter is supported at each end by a curved bracket (resting on freestone corbels), the lower ones terminating with turned columns, having octagonal caps and bases. Four common rafters occupy the space of each compartment: these are covered with plain boarding, which is itself finally covered with lead. The roof is stained of a brown oak colour and varnished. The buttresses on the south side, with one exception, and one on the east end of the church, have been, or are, in process of being renewed. It is now intended to proceed at once with putting in the masonry of the six south windows, and the one to the east looking into the Parr Chapel. The architect employed is Mr. J. S. Crowther (Manchester): the carpenters are Messrs. Fisher & Compton; the mason, Mr. John Stewart; the plumbers, Messrs. Winder & Gibson; and the stainers, Messrs. Jackson & Lyon, all of Kendal.

Hereford.—The small parish church has been restored. The whole of the work has been carried out by Mr. W. Ward, builder, Kington, at a cost of about 2,000*l.* Mr. Ward, according to our authority, the *Hereford Times*, had no architect to superintend the work. The old wood pulpit has been replaced by one of Bath stone, the gift of Mrs. R. W. Banks, Ridgebourne. It was designed by Mr. Drew, architect, London. The organ-loft at present is in a most unsightly position, entirely hiding from view the west window. Mr. A. H. Wall, of Burghill House, has offered to expend 200*l.* in filling this window with stained glass.

STAINED GLASS.

Thrapston Church (*Northants*).—The stained-glass window, which a large number of the friends and neighbours of the late Mr. John Yorke resolved to erect to his memory in Thrapston Church, has been completed. The larger decorated east window, of five lights, was selected for the purpose by the committee, and the glass has been executed by Messrs. Wailes, of Newcastle-on-Tyne, after a design furnished by themselves. The several lights of the window contain large groups of figures, representing different scenes connected with our Lord's passion, with lesser groups beneath, exhibiting subjects from the Old Testament, typical of those above them. The first light, commencing on the north side, sets forth our Lord's agony in the garden, with the comforting angel, typified beneath by Jacob's agony at seeing the torn and bloody coat of his son Joseph. The second light represents our Lord bearing His cross in the midst of the Roman soldiers, shadowed forth beneath by Isaac's bearing the wood for his own sacrifice. The central group is that of the Crucifixion, the three Marys standing at the foot of the cross, the type of which we have in the offering of Isaac. In the fourth is shown the Resurrection, and beneath is the drawing up of Joseph out of the pit. The Ascension occupies the upper portion of the fifth light, having underneath the taking up of Elijah into heaven. The tracery of the window is reticulated, and each portion of it is filled with the figure of an angel, those immediately above the principal lights bearing the instruments of the Passion, and, over these, others, carrying scrolls.

Bradford Parish Church.—A stained-glass window for the parish church of Bradford, Yorkshire, has been completed by Messrs. Morris, Marshall, Faulkner, & Co., of London. It is a seven-light perpendicular window, with the usual tracery, and divided by a transom. In the centre light above the transom is a "Majesty"—the Saviour in glory, with attendant angels. Below the transom comes a large figure of St. Peter. The other six lights are arranged in four rows, making a total of twenty-four single figures, in the following order, beginning from the upper left-hand corner:—First row: St. Elizabeth, with her son, the youthful Baptist; Anna the Prophetess; the Virgin Mary; Mary Magdalene; Martha; Mary, the sister of Lazarus. Second row:—St. John the Baptist; the Four Evangelists; St. Paul. Third row: Abraham preparing to sacrifice his son; Isaac; Jacob; David; Solomon; Joseph, the husband of the Virgin Mary. Fourth row: Moses; the Four Major Prophets; Elijah. We have thus—to reverse the order—firstly, the Jewish lawgiver, and other prophets of the Old Dispensation; secondly, an abstract of the lineage of Jesus; thirdly the forerunner and the great Apostles of Christianity; and lastly, the female saints most immediately connected with the Saviour. These surround the "Majesty" and the figure of Peter, the saint to whom the church is dedicated. The tracery, moreover, represents, in its larger openings, the four Archangels, Angels, Cherubim and Seraphim.

Holy Cross, or St. Crux Church, Pavement, York.—A stained glass window has been painted for the east window of the north aisle, by Mr. J. W. Knowles, of York, and has been erected in its place. The window is of three lights, with tracery above, and the subject is "The Ascension." It has been designed so as to fill the whole of the lights, thus forming a complete picture, without the accessories of canopies, &c. In the tracery pieces are conventional designs of various plants, coloured so as to give effect to the subject underneath.

Butlers Marston Church (*Warwickshire*).—Alterations have been made on the east window of this church: the old stonework has been taken out and replaced by an entire new window, which has been filled with stained glass, in ornamental patterns, with a figure of our Saviour in the centre, and emblems of the four Evangelists in the side lights. the tracery consists of angels, I.H.S., dove, &c., upon vine backgrounds. The whole was executed by Mr. Holland, of Warwick.

Gainsborough Church.—A stained glass window has been placed in this church in memory of the late Rev. C. S. Bird. The subject is "Christ teaching." The artists were Messrs. Clayton & Bell, of London. There are about a dozen figures represented. The group occupies a central position in the window; the space above and below, which is considerable, being filled up with designs.

Bitchfield Church, Corby (*Lincolnshire*).—A two-light stained glass memorial window has just been erected on the north side of the chancel of this church, by Lady Clarges, of London, and was executed by Messrs. Thomas Baillie & Co., of London. It contains the figure of Our Lord as the Good Shepherd, in one opening; and in the other, Our Lord the Bread of Life: each is surmounted by a canopy.

Trinity Church, Richmond (*Yorkshire*).—A subscription has been set on foot amongst the former pupils of the late Rev. James Tate, for the purpose of inserting a window in memory of him in this church.

Patterdale Church.—A memorial window of two lights, with cinque-foil above, has been placed in the south side of the chancel in Patterdale Church, Westmoreland, to the memory of the late Mrs. Rooke, by her brother, Mr. E. A. Bromehead, of Woodlands, near Keswick. The first light contains "Mary at the Feet of Jesus;" the second, an angel on the empty tomb, proclaiming, "He is risen." The cinque-foil is filled with the triple Tau, in dark ruby on a purple field. The glass was executed by Messrs. Ward & Hughes, of London.

British Church (*Pietre Maictzbury, Natal*).—A memorial window to Charles Frederick Mackenzie, M.A., first bishop of Central Africa, has been placed in this church. The figure of Bishop Mackenzie in his robes is introduced,—his right hand extended as if invoking a blessing, his left holding a crozier. The whole is surmounted by a canopy with lily crocketing, terminating in a cross, with gold rays on a blue ground. The inscription is in Latin, and occupies a cruciform shape in base. The work was done by Messrs. Ballantine & Son, Edinburgh.

PROVINCIAL NEWS.

Wymondham (*Norfolk*).—The market cross is undergoing a complete restoration. The thick coating of plaster which has long disfigured it has been removed, and thereby the original doorway, windows, and studwork have been brought to light. The upper part of the building has been restored to the perpendicular, from which it had declined. The octagonal room over the cross is intended, as we are informed, to be fitted up for a public reading-room.

Presteign.—The foundation-stone of the new Market Hall and Public Room, at Presteign, has been laid by Lady Brydges. The buildings in course of erection comprise, on the ground-floor, a poultry and general market, arcaded on the two sides fronting the principal streets, a retiring room for gentlemen, a vestibule, corridor and staircase leading to the assembly-room. The upper floor contains an assembly-room, with an orchestra receding therefrom, and retiring-rooms for ladies and for performers. Over the vestibule there will be a clock-tower, surmounted by a bell-cupola, the whole reaching to the height of 60 feet. In style the buildings are Venetian Gothic, ornamented with decorative string courses and an intermixture of polychrome brickwork. They have been designed by, and are being carried out under the supervision of, Mr. T. Nicholson, of Hereford, architect.

Ruthin (*Denbighshire*).—The foundation stone of the Ruthin new Market-hall and Corn Exchange has been laid. The new buildings, which will occupy a prominent position on entering the town, are to be erected upon a site in Railway-street, having a frontage thereto of 126 feet, and extending the full depth of the site. The basement floor will contain extensive cellarage, a portion of which is to be converted into an armoury for the Ruthin Rifle Volunteers, with a residence for the hall porter. The ground floor will comprise the Corn Exchange, News-room, Council Chamber, Town Clerk's Office, with lavatory and entrance porch. The market, covering an area of about 50 square yards, will contain all requisite shops, stalls, and standings for the various trades frequenting a mixed market. The roof, in one span, open to the ridge, will be 36 feet in height. On the front floor there will be an assembly-room, 64 feet by 32 feet, and 30 feet high, capable of accommodating 600 persons, with retiring-rooms, and two staircases. The assembly-room will be lighted by three large windows in front, and six on side elevation. The roof, which will have a light appearance, is to be polygonal in outline, broken into panels by moulded ribs, the whole resting on a carved cornice and wall level. The exterior will be a free adaptation of Continental Gothic. The ground story is to be composed of arches, within which will be the windows to the Corn Exchange, and the main entrance porch, and above the latter will rise the clock-tower, 75 feet high, having a pyramidal roof and ornamental cresting. Symbolic sculpture will be used in the tympanum of the window arches, &c. The general facing of the walls will be composed of coursed pitch-faced masonry, the material being a purple-grey stone obtained in the locality. Minera stone will be employed for the arched stone-work, with the native blue stone and limestone for the centre bands, &c., and polished granite shafts for the doors and windows. The contractors for the entire works are Messrs. Holland & Roberts, of Ruthin, from the plans and under the superintendence of Messrs. Poundley & Walker, architects, of Kerry, in Montgomeryshire, and Liverpool.

Stirling.—It is now nearly two years since the Royal Bank purchased two old tenements in King-street, for the purpose of erecting new offices on their site. The edifice has been built according to plans supplied by their architects, Messrs. Peddie & Kinnear, Edinburgh. The building is four stories in height. The ground-floor consists of the bank office, extending from the centre, and occupying the upper portion, while the lower portion is a shop, and immediately behind which, and on the floor, is a saloon, extending back a distance of 60 feet, and 20 feet wide, having a curvilinear roof, formed into equal panels and roof-lights. The façade is of a Grecian character. The bank-door is placed in the centre of the elevation on the ground-floor, and is surrounded with architraves, having carved trusses supporting a cornice, with frieze enrichment between the trusses, all having a suitable projection from the line of the wall. The windows of the bank-office and entrance-door to staircase are treated together, being slightly recessed from the line of the wall, and separated by pilasters, with bases and moulded caps. The whole work has been under the superintendence of Mr. T. B. McFadzean.

Dublin.—The plot of ground lying south of the Hardwicke Fever Hospital, and adjacent to North Brunswick-street, recently purchased by the proprietors of the Carmichael School of Medicine from the governors of the House of Industry Hos-

pitals, for the erection of new buildings in connexion with the school, has been formally handed over by the Commissioners of Public Works, in whom the premises were vested, to the proprietors of the school and the board of governors of the hospitals. The late Surgeon Carmichael had by his will provided a fund to enable the proprietors of the school which bears his name to erect this building.

PORTLAND AND ROMAN CEMENT.

If we knew the building to which "Cautious" refers, we might be able to offer explanations that would be satisfactory to him; but it is not necessary. We prefer rather to take the statement as we find it, and to assume that in the course of four years we have made and issued some cements which either from inherent defects or from misuse have failed of their intended end.

So far from this being surprising or not likely to recur, we think it highly probable that in view of the thousands of tons of Portland cement now annually made and used, accidents of a like nature may often happen.

If they are of too frequent recurrence the cement will lose its reputation and be discarded; but it would be as unjust to pronounce this condemnation on account of occasional failures as it would be to proscribe evermore the use of the freestones because Buckingham Palace, the Borough-road Training School, and part of the Catholic cathedral of St. George's, built with Caen stone; or Henry VII.'s Chapel, built with Bath stone; or the Palace of Westminster, built with Anston stone; have become so disintegrated as to require in some cases to be painted, and in others to be covered with chemical washes to arrest further decay.

The map-like cracks referred to by your correspondent, known by workmen as "fire cracks," and which are all but inseparable from every lime cement, proceed from a very slight contraction in drying, generally under the influence of a hot sun. Unsightly they are; but not dangerous to the stability of the work, since they are only skin deep.

In Portland cement, which is generally left without colouring, they are more perceptible than in Roman cement, though they exist in that material under the washes and paints which are needed to hide its uncomely natural colour, as may be seen in Belgravia, whose "rows and streets," it may gratify "Cautious" to know, were stuccoed a generation ago with Roman cement or mastic years before Portland cement was "born or thought of."

If the builders of that day are still living, they can tell us whether Roman cement was uniformly a success, or whether between the months of October and April King Frost did not play havoc with their work, and cause it to bulge and peel in very unprofitable fashion.

As makers of cement it is not our wish to malign those who work it; but we suspect "Cautious" has hit the cause of most of the failures when he tells us that plasterers generally finish with a skimming coat as thick as half-a-crown, which is killed by excess of trowelling, and then peels off under the first hot sun or shower of rain. For this evil he suggests the proper remedy.

In conclusion, we presume not to dictate to the public which cement it should prefer, or to assert dogmatically the superiority of one sort to another. We have a strong conviction based upon theory and supported by evidence, that Portland cement is the most enduring, and, therefore, the most economical material of its kind ever invented; but if that opinion be not shared by "Cautious" and by the building profession generally, independent appeal may profitably be made to the engineers of the Board of Works, or to some of the eminent builders of the metropolis, who largely use, and can intelligently appreciate the difference between the two cements. They can afford to be quite impartial in the matter, and it may well be left to their experience to say whether the artificial cement called Portland does or does not present in its composition and uses the aspect of durability, or whether after ten years of progressive entombment the natural or Roman cement should really "rise again" and take its place.

J. B. White & Brothers.

British Archæological Association.—At the first meeting, Wednesday November 25th, at half-past eight p.m., papers, will be read "On Unpublished MSS. relating to Meaux Abbey," by Mr. E. Levien; and "On the Roman Roads mentioned in Antonine's Itinerary, as leading to and from Colchester," by Mr. H. Jenkins.

VENTILATION BY THE SASH.

In 1849 or 1850, I sent a small model for the top rail of a sash, showing my system of ventilation, and a description thereof, to the Society for the Encouragement of Arts and Sciences. On the description I call it "The Permanent Ventilator for the Palace or the Cottage," and it may be seen at the Society's house, John-street, Adelphi, in their museum. As it was so simple, I did not think it worth a patent, or even registering. Where there are not two windows in a room, a mere block to support the top lath, which fixes the wire gauzes, gives a perfect action to one sash; and the imperfect fitting of the middle rail or the door to its case, produces in most cases a sufficient supply of air to give an imperceptible current without causing a draught. In case of more air being required, it should be admitted not lower than the architrave over the door. Any lower apertures are objectionable on sanitary grounds. This mode of ventilating I proposed some twenty-five years ago.

R. Dennis Chantrell.

ROOM FOR AN ARCHITECT.

Sir,—I desire to call the attention of young architects, through the medium of your paper, to the fact, that we are, in this town, Stockton-on-Tees, and neighbourhood, without a resident architect. As we have a population (including South Stockton) of some 20,000 inhabitants, I consider this a state of things requiring a remedy. To show you there is a probability of occupation, I must state that the town is growing remarkably fast; which statement is confirmed by the fact that, at a meeting held last week, our retiring mayor publicly stated that, during his mayoralty the Board of Health had sanctioned plans for fourteen new streets, and 276 new houses: these were in Stockton alone; and more were passed at the last Board of Health meeting, on Friday last. In South Stockton, which is only separated by the River Tees, and where a Board of Health has just been formed, things are equally prosperous, and new houses springing up in all directions: the same may be also said of the north side of the town.

A Stocktonian.

LIGHT AND AIR.

Lee v. *Strand Music Hall Company*.—The plaintiffs, Mr. W. Lee, Mr. J. Jerdein, and Mr. J. Jerdein, jun., who carry on the business of coal merchants under the style of the Guinea Coal Company, complained by this bill that the defendants, whilst proceeding with the erection of their hall, had demolished the roof of the house No. 17, Wellington-street, in which the plaintiffs have an office; that they had put in jeopardy the lives of those who had to work in the office; and that they had put up scaffolding which impeded the approach to the office. The plaintiffs, therefore, asked for an injunction to restrain the defendants from damaging or removing any part of the house No. 17, Wellington-street, and from continuing any erection whereby the access to the plaintiffs' office was impeded. They also asked the Court to award damages for the injuries they had sustained.

Mr. Malins and Mr. Osborne Morgan were counsel for the plaintiffs.

Mr. Greene and Mr. George Murray, the counsel for the defendants, offered to pay to the plaintiffs 50*l*. in satisfaction of their claim, without prejudice.

This offer having been refused,

The Vice-Chancellor (Stuart) ordered that inquiries should take place in his chambers to ascertain what damage or injury had been done to the plaintiffs by the defendants' acts.

Miscellanea.

Fall of a Bridge.—A wire bridge over the Hawick Railway at Hassendean Burn fell across the rails, just before a train came up. To clear a passage the engine was detached from the train and attached to the broken bridge. By this means the obstruction was quickly drawn out of the way and the train allowed to proceed.

New Bridge at Peebles.—An iron suspension-bridge of one arch, the length of which is about 120 feet, has recently been erected near the Tweed at Crownhead, Stobo, opposite the grounds at New Dalwick, the property of Sir John Naysmith, of Posso. The expense of its erection is to be borne partly by the Broughton and Peebles Railway Company, who are to have a station near it, and partly by the landed proprietors of the district. Formerly at this point there was only a ford, with a wooden bridge for foot passengers, the approach to which floods often rendered impassable during winter.

Strange Accident.—At Langley-mill, near Eastwood, the wife of a farmer went out to close the shutters. To get to the window she had to pass down the garden, where, underneath the pathway, there was a cistern arched over with bricks. As his wife did not return in a few minutes, the farmer went out to close the shutters himself, and in going down the path he stumbled and fell into the cistern, but scrambled out, and, obtaining assistance, his wife was found at the bottom of the cistern, which was 9 feet deep of water, quite dead. It is supposed that the arch had fallen in shortly before the deceased went down the garden; and it being quite dark, there was no doubt she fell in as her husband did. The coroner's jury returned a verdict of "Accidental Death."

The New Mayor of Rochester.—Mr. Alderman Naylar, well known in that locality as a builder and contractor,—a man who has built up his own fortune and reputation with little extraneous scaffolding to aid, and who, moreover, is not ashamed that this fact should be known,—has been elected mayor for the ensuing year. The *Chatham News* gives an account of the election and dinner.

Gerish's Mortising and Drilling Machine. Messrs. Gerish & Weston have recently patented an improved machine for drilling and mortising wood, principally intended for manual labour, although it can be driven by power if required. When worked by a man, the motion is given by a treadle, where the whole weight of the body can be applied without any inconvenience, and the hands left at liberty. The chisel is a contrivance for bringing the stuff out when cut: it will bring out two-thirds of the cut, it is said, at each stroke, and the remainder will fall out, requiring no core-driver, and consequently effecting a very great saving of time and expense.

The Dwellings of the Poor.—At a meeting of the clergy and lay consultees of the rural deanery of Amesbury, in the diocese of Salisbury, the following points were considered in reference to the dwelling-houses of the labouring poor; namely, 1. The great need of improvement generally in the accommodation provided in the houses rented by labourers; 2. That this matter was not to be regarded as a question of profitable investment, but as a question of morality, affecting the well-being of the nation; 3. That while the home of the labourer continues to be what so many of their houses now are, it is very doubtful what good can be done by the most careful teaching in church or school; and it was resolved to communicate with the bishop with the view of obtaining a better consideration of the subject throughout his lordship's diocese.

The New County Hospital at Winchester. The plans for the new hospital at Winchester are now in the custody of the secretary at the hospital. The general form of the design is that of a central building with wings. The position which the architect has assigned to the chapel on the second floor of the east wing is said to be such as to enable him not only to produce a more effective and conspicuous memorial of the late warden of Winchester College than could have been accomplished by the limited amount of the subscriptions for that purpose (about 700*l*.), if it had been expended on a separate and necessarily insignificant building, but also to make this memorial improve the general appearance of the hospital. The building will contain 110 beds, or 112 if need be, and there will be 1,560 cubic feet allowed to each patient in the large wards, and a still larger proportion to those occupying the small wards. The building committee have decided that the best interests of the hospital required not an attempt at planning improved day-rooms, but their total abolition. In their report they had given their reasons, and the authority on which they have proceeded. Miss Nightingale is said to have remarked that the building committee were to be congratulated on having received from Mr. Butterfield a plan for a model hospital.

Mummies at Thebes.—The late Mr. Henry Rhind, as we noticed while reviewing his book on Thebes, opened a tomb there, in which, with two bodies, were papyri, or narratives written on the papyrus leaf. Fac-similes of these have just been published, and the *Reader*, in noticing them, says,—"The text gives some curious details of the process of embalmment. It seems that Sebauf, the occupant of the granite sarcophagus, was, amongst other things, 'boiled in 206 jars of salt,' a treatment more calculated to insure his remains against the depredations of moths and worms than the possession of the Hermetic book and the numerous amulets which were rolled up amongst the wrappages, and which were supposed to have this virtue. Bitumen and frankincense from Arabia are also mentioned as being extensively used. The complete time of embalmment occupied seventy days in the period to which these mummies belong. The lady Taani did not, however, live to complete all the ceremonials of mourning for her husband. She lamented him forty-eight days, and then herself followed him to the tomb. These papyri do not add much to our previous knowledge of the ideas of the Egyptians as to the state of departed spirits; but they illustrate some remarkable points. First, they prove that the religious system of Egypt at this late period was substantially identical with that which is known to have existed in the earliest times of which we have record."

PROPOSED NEW HALL FOR ODD FELLOWS AND FORESTERS.—At a crowded meeting of the members of these societies held at the Council Chambers, Ipswich, on Friday evening, it was unanimously resolved to erect a hall for the use of the two societies, by means of a company of shareholders representing a capital of 3,000*l.* under the Limited Liability Act.

TERCENTENARY OF SHAKSPEARE.—The design for the temporary Pavilion, at Stratford-upon-Avon, for the Shakspeare Tercentenary Festival Committee, has been made by Messrs. Thompson & Colbourne, architects. The following tenders for its erection, exclusive of decorations, have been received:—

Eassie & Co. Gloucester	£2,449
G. Clarke & Son, Wootton Wawen	1,799
Jas. Cox, Son, & Holton, Stratford-on-Avon	1,475
Branson & Murray, Birmingham (accepted)	1,309

FOUL AIR IN CISTERNS FROM WATER-CLOSETS. About two years ago correspondents of ours called attention to the evil arising from the custom of water-closets being connected and served with water from the general cistern. A double or separate cistern was proposed; but probably not many, except perhaps in first-class dwellings, followed that advice. A correspondent, "R. F. C.," therefore proposes the following plan:—The pipe serving the water-closet with water, instead of having its upper end inserted in the cistern, should be continued and carried up outside the same for about 2 feet higher than the top of the cistern, the upper 2 feet being slightly bent and the end of the pipe left open; the connexion between this pipe and the cistern to be by means of a short piece of pipe, one end connected to the bottom of the cistern and the other jointed into the one from the closet by a joint at a point about 9 inches or 12 inches above its entrance into the cistern.

WHO IS LIABLE TO PAY FOR OXFORD-STREET? At the last weekly meeting of the Marylebone vestry, the vestry clerk read a report from the parish solicitor, announcing that after nearly five years' litigation the Court of Queen's Bench had given a final judgment against the authorities of St. Ann's, Soho, as to their liability to contribute to the maintenance and repairs of Oxford-street. The maintenance of Oxford-street costs 4,000*l.* per year, of which it was contended the parishes on the south side, St. James's, St. George's, and St. Ann's, were liable to pay one-half. St. Ann's refused to do so on the plea that their parish only extended to the frontage of the houses. Upon this point, in a trial at law, they were defeated, a map of their own being produced, which showed their boundary came to the middle of Oxford-street. A new trial was, however, obtained upon special points of law; and the judgment being on all points against St. Ann's, the authorities of that parish have now to pay over to the vestry of St. Marylebone about 1,500*l.*, and the costs, which amount to several hundreds more. The report was ordered to be received and entered upon the minutes.

EXPERIMENTS WITH A NEW SUSPENSION BRIDGE.—Some trials of an interesting character took place on the Royal Engineers' field-works, Chatham, on Tuesday last, in the presence of a large number of officers, for the purpose of testing a new description of suspension-bridge, for military purposes, the invention of Sergeant-major J. Jones, Royal Engineers. The bridge on which the experiments were made was formed of the galvanised iron bands with which the new description of iron gabions now in use in the service are formed. These bands, which are about 3 inches in width, and the thirtieth part of an inch in thickness, were joined together at the end, by means of a button and eye; and, notwithstanding the apparent slenderness of the material, bore an enormous weight. Eight widths of the iron bands, each four bands thick, formed the "chains" of the suspension-bridge, and on these were laid the chesses, used in pontooning, which served as the floor of the bridge, the whole being steadied by means of guy ropes, fastened to stakes, answering to anchors in a river. With these materials a bridge having the enormous span of 130 feet was formed by thirty Sappers and Miners in six hours. A battery of mounted field artillery was marched across with the greatest ease, the bridge having only a very slight oscillation. A body of about thirty Royal Engineers were next marched across, in step, and this was the greatest strain to which the structure could be put. Notwithstanding this, however, the only perceptible defect was the great oscillation of the bridge, which ultimately loosened one of the guide ropes.

THE MIDDLE LEVEL.—It appears from the accounts for the financial year ending April 6, 1863, that the sum of 86,651*l.* was disbursed during that period,—57,744*l.* in reference to works consequent on the failure of the out-fall sluice. A leakage and some disturbances at the syphon dam and works have lately occurred, and Mr. T. E. Harrison, C.E., came down for the purpose of making an examination with Mr. Lunn, the resident engineer. Mr. Lunn has given directions to have some puddle prepared, and the men employed will open out as far as they can the course of the water, and will then fill the excavated space in with puddle. It appears from the accounts that in the commissioners' last financial year the amount taken up on loan was 71,000*l.*, the bonded debt of the commission being thus increased to 461,000*l.* The amount paid for interest was 16,693*l.*, and the sum received in taxes was 24,691*l.*, while the other ordinary accessory receipts of the year were 820*l.* A temporary loan of 20,000*l*, contracted in 1862-3, has been paid off.

MANCHESTER UNITY OF ODD FELLOWS.—The nineteenth anniversary of the Loyal Cambridge Lodge has been celebrated at the Clanricarde Hotel, Paddington. Mr. Pitt occupied the chair. P.P.G.M. Harris stated that, in January, 1862, there were 335,145 members; but, owing to the distress last year in the manufacturing districts, the increase had not been equal to previous years; nevertheless, 24,276 were admitted during that year; and at the present time, from the returns made, there are 370,000 members in connexion with the Society. From the returns made by the three largest districts,—namely, North London, South London, and Norwich,—these comprised 20,859 members, with a capital of 164,429*l.* 15s. 4¾d., averaging nearly 8*l.* per member, or at the rate for the whole Society of two millions and a half of saved capital. The secretary, Mr. Stevens, stated that the expenditure for the past year had been 120*l.* 7s. 6d.: the receipts had amounted to 239*l.* 14s. 9¾d., leaving a profit of 119*l.* 7s. 3¾d., and making the present value of invested capital 1,958*l.* 1s. 4¾d. In alluding to the *Times* article as to the insolvency and abuses in Friendly Societies, he said that the Manchester Unity had for years paid graduated rates of contribution, compiled by an eminent actuary from the experience of one million years of life. The assets and liabilities of this Lodge were periodically valued by an actuary, and they were found perfectly solvent.

MONUMENTAL.—The Guards' Crimean Memorial, in Trinity Church, Windsor, is nearly completed. A gallery runs round three sides of the edifice, the front panels of which have been covered with the names of soldiers,—officers and men, side by side, many of whom had attended the church where their deeds are now recorded. The names are painted in coloured letters on a gold ground. Some of the officers' tablets are ornamented with the coats of arms of the deceased, while the names of the various battles recur. Beneath these panels, full of names, the texts which, we are informed, her Majesty has herself selected, have, with the exception of a small portion, been inscribed in highly ornamented letters, commencing at the chancel end of the south gallery, and extending right round the church. These texts consist of the 7th and 8th verses of the 4th chapter of the 2nd Epistle of Paul to Timothy, the 12th verse of the 6th chapter of the 1st Epistle to Timothy, and the 1st and 2nd verses of the 12th chapter of the Epistle of Paul to the Hebrews. There will be a scroll border beneath the Queen's texts, decorated with gold oak and laurel leaves, on a blue and brown ground. The roof of the chancel is also being decorated with blue and gold work.——The monument to the Duke of Richmond, at Huntley, is now completed. His grace is represented as colonel of the Sussex militia. The figure (in Redhall freestone) is erect, and 9 feet high, and the pedestal is 12 feet high. The sculptor was Mr. Alexander Brodie, of Aberdeen.——The *Times* Dublin correspondent reports the uncovering of the statue of the late Lord Plunket in the hall of the Four Courts, Dublin. The statue, which is of white marble, represents the statesman not robed as Lord Chancellor, but as a speaker in the act of addressing the House of Commons, with a dress-coat cut after the modern fashion. This, with the closely-fitting knee-breeches, gives the statue a bare appearance.——The new statue of the Emperor Napoleon I. has been raised to the top of the columns in the Place Vendome.——The *Reader* says that a fund is in course of being raised for the erection of a memorial in honour of the late Edward Bache, the composer.

THE PORTSMOUTH SURVEYORSHIP.—Mr. Lewis Angell, C.E., surveyor under the Board of Works for the Wandsworth District, has been elected to the surveyorship of the borough of Portsmouth.

PETROLEUM GAS. — A correspondent of the *American Gas Light Journal* says:—The laws governing the destructive distillation of petroleum and its distillates are the opposite of those so successfully applied to the manufacture of coal-gas. They are as follows:—1st. Graduation in the application of the heat, in order to vaporize the oil only as fast as the means provided to convert the vapour formed into gas, can so act upon it. Otherwise there must be great waste of material. 2nd. As on the one hand to convert vapour into gas requires its actual contact with red-hot iron, and on the other such contact, if continued, again decomposes the gas (the cause of the carbonaceous deposits so often found in gas retorts, and which come from the destruction of gas, not vapour or tar, as many may suppose), the apparatus must be so arranged as to compel the vapour in its passage out of the retort to come into actual contact with its red-hot surface, and while in such contact to travel so rapidly as to leave little or no time for the decomposition of the gas. When treated according to these laws, petroleum will yield to the gallon 125 feet of gas of surpassing richness, and there will be no clogging in the pipes or deposit in the retorts. But, to make the manufacture profitable for gas companies, a third condition is required, to wit,—Dilution of the gas to secure its combustion without smoke, and enable it to be sold at the prices charged for coal-gas. This condition is fulfilled by distilling the oil in connexion with wood. The results obtained when it is so treated are these:—There are from each gallon of petroleum, or of petroleum tar (for experience shows that when treated with wood, the tar, although so much cheaper, answers as well as the oil), and 155 feet of hard wood, 300 feet of gas of equal illuminating power with coal-gas, and 1¾ bushel of good clean charcoal, with the cost of the wood, and therefore leaving the entire yield of gas, so far as cost is concerned, from the tar or oil used. Of course, when so much of the gas comes from the wood, less heat is required than is used for coal, and there cannot possibly be any clogging of the pipes.

GAS.—A further reduction in the previously low price of gas in Walsall has been determined on by the local gas committee, the gasworks in Walsall being the property of the town, and managed by the Improvement Commissioners. A report of the committee, read at a special meeting of the Commissioners, stated that "during the year which ended on the 30th September last, the profits made, after deducting the annual instalment in reduction of the debt, have been such as to provide for necessary and considerable outlay, for extensions and increased accommodation, without borrowing; and also to pay off, without re-mortgaging, a mortgage debt of 1,150*l.*, which fell due in the month of September last. This result has been obtained in a year during which the price of gas has been lower than ever before known in Walsall, and considerably lower than in many neighbouring towns, and lower than in any other town in the midland district of England." After pointing out the interest the inhabitants had in supporting their own gasworks, the report proceeded,—"Your committee have to recommend that as from the 1st of October inst. the price of gas be reduced to the following scale:—viz., 2s. 10d. per 1,000 cubic feet, to consumers of less than 25,000 cubic feet per quarter; 2s. 8d. per 1,000 cubic feet to consumers of 25,000 and less than 100,000 cubic feet per quarter; 2s. 6d. per 1,000 feet to consumers of 100,000 cubic feet per quarter and upwards." The committee will also supply gas for the lamps at the rate of 2s. 4d. per 1,000 cubic feet, or 2*l.* 14s. 6d. per lamp per year. The report added, that if the present reduction should be followed by an increased consumption, the price of gas may undoubtedly be further reduced in October next!——Gasworks have been opened at Brightlingsea. The expenditure actually incurred has been about 2,000*l.* for works somewhat larger than were originally contemplated, in order to meet an increase of consumption in future years without the heavy expense of additional buildings. The works are situate at the bottom of Sidney-street,—a new thoroughfare leading to the Hardway. The iron gas-holder will contain 9,000 feet. The works were designed by, and carried out under the direction of, Mr. Church, the engineer. The contractors for the buildings were Messrs. Gull & Lake, of Brightlingsea; and the apparatus, machinery, and mains, were supplied by Mr. Cliffe, of Huddersfield.

York City Walls.—The town council has determined that in future the rents received from the moats and ramparts (260*l.* per annum) shall be applied towards the gradual repair of the walls. The local *Herald* proposes to raise a sum of money at once on these rents, and thoroughly and at once put the walls into a state of repair. The restoration of the walls on the Micklegate side of the river has been already effected at a cost of from 2,000*l.* to 3,000*l.*; and, as the distance between Bootham Bar and Layerthorpe Bridge is considerably less than the Micklegate walls, it is assumed that a much less sum of money would suffice.

The Great Bell of Westminster Palace. "Big Ben," though as cracked as before, is once more on duty, telling the hours nearly as well as ever he did. His sound, though *not* quite sound, and rather more gongy than it was, is so far even improved, inasmuch as heretofore his excessive vibration, after two or three strokes, interfered with the stroke which followed in such a way as partially to smother, as it were, every third or fourth toll; whereas now, on the contrary, there is no such interference, and every stroke takes due effect, so that his tones are all alike distinct. The crack, it is said, has been found to be not so serious as was supposed; not passing quite through the metal. Though a little eccentric, therefore, crazy "Ben" may long send his long tongue booming over the metropolis.

Proposed Victoria Cross Gallery.—We are glad to see a suggestion in print for the purchase of the pictures painted by Mr. Desanges, to illustrate the varied deeds of the Victoria Cross heroes, pictures that have the value of truth irrespective of their artistic merits, as being composed according to minute descriptions detailed by the actors themselves, including also their portraits. "The noble deeds of the Victoria Cross heroes, when once recorded in the *Gazette*, run a great chance of being forgotten and crumpled up along with the paper itself, being too long for insertion elsewhere. But this small collection of pictures affords us an easy opportunity of publicly prolonging their deeds." The purchase of them, fifty in number, though it might be formidable to an individual, would be an unfelt trifle when effected by the combination of many. The sum expected by the artist is really small for a great public purpose of lasting utility. A very small contribution from all now in the services would suffice. Civilians also, being included in the order, might gracefully contribute their mite. The suggestor invites communications and aid, addressed to R. T., Junior United Service Club.

Lecture on German Art, at Bristol.—Mr. J. B. Atkinson recently gave a lecture at the Philosophical Institution, Park-street, Bristol, on "The Revival of Art in Germany: the Schools of Munich and Dusseldorf." The audience was large and appreciative. In introducing the subject, Mr. Atkinson said he had chosen the Revival of Art in Germany for two reasons—primarily, because in modern times, few, if any, movements could show fruits more ripe and abundant; and, in the second place, because this attempted national regeneration would afford them the opportunity of reviewing those essential laws and principles which, belonging to all time, circumscribed by the limits of no one country, were inherent to the life and the growth of every true art. The topic was so far-reaching, that at the outset boundaries must be prescribed. Let it be understood, that of all the arts painting was the only one which the time allotted to a single lecture would enable them to discuss. For the present their landmarks must be these: they would, as a starting point, take a survey of those forces, destructive or creative, which went to form the new birth: they would then enumerate some of the leading masters and characteristic works of the school; and lastly, such time as might remain should be devoted to a critical estimate of the merits and failings which had marked this ambitious attempt to raise in Germany the standard of high art. The lecturer's remarks to the effect, that the modern German school is the joint product of the early Italian and early German, were illustrated by three engravings from the works of the respective schools. The first was the well-known head of Raffaelle, painted by himself, at the age of eighteen, when he might be said to belong to the pre-Raffaellites; the second, the head of Albert Durer, strong and grotesque, and so characteristic of his own style of art; and the third, the head of Overbeck, combining much of Raffaelle's spirituality with something of Durer's power.

How to Prevent an Echo.—Sir: Believing with your correspondent, Mr. J. Edmeston, that the cause of the echo, in the cited instance, is the roof rising at an angle of 45 degrees, I would make a suggestion. Let a cloth, no matter how thin, be hung from or rather nailed closely to the apex of the roof completely along the room, closely fastened to each end wall, and to hang as low as the springing of the roof.—W. J. D.

Swansea Water Works. — Mr. Rawlinson writes that he was misunderstood as to what he said at the opening of these works,—"I did not mean to imply that an abundant supply of pure water alone would necessarily reduce the Swansea death-rate. I knew that Swansea was being sewered and drained, and intended to say that all the sanitary works in connexion would tend to a reduced death-rate, as in Salisbury, in Ely, in Worthing, and in other places." Instead of "23 in the thousand," the report has erroneously "23 *per cent.* in the thousand." The correct meaning, however, is obvious.

The Forms of Ships.—It has generally been considered that great progress has of late years been made in improving the forms of ships; but, if Captain J. E. Cole, of New York (not Captain Cowper Coles, of the Cupola ships) be right, the old broad flat-bottomed vessels, only a little more rounded perhaps, like the side (not the belly) of a salmon, is the best shape after all. In a pamphlet titled "A Criticism on the Form of Ships" (Blight, printer, Fenchurch-street), he maintains that, while a ship is making way, the displaced water passes under her bottom, not along her side; or she rides over it rather than cuts through it; and he gives various seamen's reasons for this opinion, which seem to have some force in them. This, however, is not a subject into which we can enter, although we think it of sufficient importance to make a note of it. Are we about to come back to something like the Chinese junk as our model in naval architecture? Of course, Captain Cole has stability as well as speed in view; but surely the broad round bottom is not the beau ideal for speed? Yet what are our swift racing skiffs but round-bottomed canoes, on the very old Indian model?

Arsenic in Paper.—This poison is principally employed in trade to produce a peculiarly vivid and showy shade of green. It is not a natural green, and neither represents the green of trees, of plants, nor of grass. On account of its brilliancy and attractiveness, it has superseded the less decided tints of nature. The form in which it is generally employed in this country is that of a green powder, which is commonly known as "emerald green." It is known to chemists and writers on science as "Scheele's green," after its discoverer. Another kind is also called "Sweinfurth green," from a town in Franconia, where it was extensively manufactured on its early introduction. The chemical composition of Scheele's green is arsenious acid, six parts; oxide of copper, two; and acetic acid, one. The number of articles in the market in which this dangerous material forms an ingredient, is beyond conception. You send your child for some toys or sweetmeats, and in both it is used as colouring matter. The box of dried fruit you get home is lined with a most seductive emerald green. You get it as a wrapper for your morning chocolate. You get it around your packet of confectionary, and you lay it next your stomach with that blanc-mange, apple-tart and cake which your cook produces as her best production. Your book from Mudie has it for a side-lining, and the report of the managers of the Industrial Institute which you receive is covered in the same alluring shade of green. Nor does it stop here. Go into the pastry-cook and confectioner's, and you find the walls and shelves painted with the same destroying colour. Your library is painted or papered with this same colour; and the flowers you so much admire on your wife's head-dress are, alas! emerald green; and the sweet Emily charms you with the wreath and tarlatan of the same fascinating colour. The fact is, this colour pervades us like an atmosphere. The prevalence of it in our shops, our homes, our churches, our concert-rooms, and our tea-gardens, make it the most constant poison we have.—*Macniven & Cameron's Paper Trade Review.*

TENDERS.

For pulling down and rebuilding house, 3, York-street, Middlesex Hospital, for Mr. Richard Holland. Mr. J. B. Benwell, architect:—

Hyde (accepted)	£680 0 0

For house, North Woolwich-road, Plaistow. Mr. John T. Fisher, surveyor. Quantities not supplied:—

Hughes (accepted)	£331 5 0
Cordery	327 0 0

For a house, at Wimbledon, for Mr. James Gibbons. Mr. George Truefitt, architect:—

Patrick	£1,447 0 0
Warne	1,420 0 0
Stimpson (accepted)	1,295 0 0

For additions, alterations, repairs, and decorations to No. 4, Great Cumberland-street, Hyde Park, for Mr. J. C. Durnford. Mr. Alfred Wright, architect:—

Nixon	£1,217 0 0
Smith	1,130 10 2
Longmire & Burge	1,088 0 0
Fish	1,040 0 0

For warehouse, stables, and shop-front, East India-road, Limehouse, for Mr. Samuel Bradney. Mr. Wigginton, architect:—

	Warehouse.	Shop-front.	Total.
Munday	£856	£630	1,486
Kellby	549	549	1,278
Hack & Son	537	537	1,237
Ennor	398	398	1,160
Warskitt (accepted)	391	391	1,141

For alterations to house, as above, for Mr. Bradney. Mr. Wigginton, architect:—

Kellby	£152 0 0
Warskitt (accepted)	138 10 0

For erecting National Schools, at Langford, Beds. Mr. John Norton, architect:—

	For Two-story Building.	For One-story Building.
Gray	£1,065 15 0	£662 0 0
Twelvetrees	1,009 0 0	539 0 0
Durham & Wilkins	940 0 0	495 0 0
Conquest*	905 0 0	427 0 0
King	825 0 0	485 0 0
Wildman	810 0 0	532 0 0

* Accepted, subject to alterations.

TO CORRESPONDENTS.

"Going Along" will be continued in our next.

We cannot interfere, editorially, in disputes between architects and their clients.

Newnham Surveyorship.—Other correspondents complain with C. E. of similar treatment, and ask to know the result of the election.

J. A.—T. M. (any foreign bookseller).—M. C. W. H.—H. H. V.—B. R.—C. J. R.—Candidate.—Competitor.—Disappointed.—A Lily of "the Valley."—Y. Z. (the information has not reached).—Holborn Valley (nine competitors write to complain that their designs have not been exhibited. The reason given by the committee is stated in our leading article).—H. H. S.—S. J. B.—P. H.—M. C.—C. F. H. (thanks).—W. L. B. (we have not room for "circular" letters).—P. S.—W. J. D.—W. P.—J. J. M. (plan not exhibited).—A. W. B.—E. P.—S. B.—Linseed Oil (one or two manufacturers and a co-operative society who state they sell pure oil, must take the usual means to make this known).—J. W.—T. C. T.—R. E. G.—B. E. H.—R. D.—T. W.—H. de M.—W. C. W.—E. J. T.—J. C.—An Art-lover (next week).—J. E. (ditto).

Erratum.—The weight of Bow Bells (p, 815) was erroneously cast. It will be seen it should be 10 tons, 4 cwts., and 2 lb.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender; not necessarily for publication.

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WANTED, a SITUATION, by a respectable Man, aged 30, a Three branch Hand.—Apply by letter to G. 30, Great Hermitage-street, Wapping.

WANTED, JOINER'S WORK by the PIECE. Town or country.—Address, A. B. 13, Winchester-street, Pimlico, S.W.

TO BUILDERS.

WANTED, to PLACE a steady respectable Youth, aged 18, with a practical Builder for IMPROVEMENT. If a Foreman of Works could introduce him to a good firm, and board and lodge him, it would be desirable. A premium given. Address, H. W. 42, Threadneedle-street, City.

TO BUILDERS, CONTRACTORS, AND OTHERS.

WANTED, a RE-ENGAGEMENT as CLERK, by a highly respectable and energetic Young Man, of business habits. Is a thorough bookkeeper, and a tolerable draughtsman and measurer. Security if required. Good references. Salary moderate.—Address, A. B. Watson's Library, No. 1, Omega-terrace, Alpha-road, N.W.

TO CARPENTERS AND JOINERS.

WANTED, by a Young Man, a SITUATION as IMPROVER to the above trade. Wages not so much an object as a desire to improve.—Address, R. S. M. Office of "The Builder."

TO ARCHITECTS.

WANTED, by the Advertiser, who has had two years and a half experience as an Assistant, a SITUATION in an Architect's office, in Town or country. He can prepare working and fair drawings, take out quantities, measure up, &c. First-class testimonials.—Address, L. N. W. Albert Villa, Selkirk-street, Cheltenham.

TO BUILDERS AND CONTRACTORS.

WANTED, a SITUATION, by a thoroughly qualified BUILDER'S CLERK, who can measure up works and take out quantities, is a good bookkeeper and accountant; also tidy draughtsman, and well acquainted with routine of first-class builders' establishments in both town and country. Testimonials unexceptionable. — Address, Z. Post-office, Camberwell-green, S.

TO BUILDERS AND OTHERS.

WANTED, EMPLOYMENT, at piece or day work, by an experienced JOINER and good staircase hand, aged 35, or some responsible situation. Would not object to constant work in a good jobbing shop. Good reference. The N.E. or the City preferred.—Address, J. N. 1, William-cottages, Acton-street, King-laud-road, London, N.E.

TO BUILDERS AND CONTRACTORS.

WANTED, by a thoroughly Practical Man, a SITUATION as General, Shop, or Out-door FOREMAN; or to Take Charge of a Job (Gothic or otherwise). Is conversant with measuring and drawings. Reference given if required. Country not objected to.—Address, A. B. 78, Lillington-street, Pimlico, S.W.

TO BUILDERS AND OTHERS.

WANTED, by a JOINER, aged 31, a RE-ENGAGEMENT as GENERAL FOREMAN, or to Take Charge of a Job. First-class reference from a London firm.—Address, G. W. 7, Rutland-street, Pimlico, S. W.

TO BUILDERS, PAINTERS, AND PAPER-HANGERS.

WANTED, a SITUATION, as PAINTER, GLAZIER, and PAPER-HANGER. Can do writing, graining. Is a useful man. Or by piece-work.—Address to W. 3, New Turnstyle, Holborn.

TO BUILDERS AND SURVEYORS.

WANTED, a SITUATION in either of the above offices, by the Advertiser, who has served his articles, and has since been engaged in the office of a first-class builder's surveyor in London. Is thoroughly acquainted with abstracting, billing, measuring up, &c. Age, 23.—Address, AUDIO, 103, Cheapside, City.

TO ARCHITECTS SURVEYORS, &c.

WANTED, by the Advertiser, of 12 years' experience, a RE-ENGAGEMENT as GENERAL ASSISTANT. He is a good draughtsman, designer, &c.; accustomed to superintend buildings, and well versed in the general routine of the office. Salary moderate.—Address, H. H. Robson's Library, Edgware-road, London.

WANTED, in Town, by a Man aged 40, a SITUATION as PLUMBER, PAINTER, and GLAZIER. Three years' character.—Address, J. C. 10, Great Barlow-street, High-street, Marylebone.

WANTED, a SITUATION as WORKING FOREMAN to a Carpenter and Builder, or in a Jobbing Shop, by a steady Man, aged 40. Writes a good hand, can keep books, measure up work, &c. Good reference to present employer. Town or country.—Address, K. 22, Richmond-road, Barnsbury, Islington.

TO BUILDERS AND CONTRACTORS.

WANTED, by a Young Man, aged 25, a RE-ENGAGEMENT as CLERK of WORKS, out-door, or GENERAL FOREMAN. Can give first-class testimonials as to competency, &c. also security to any reasonable amount, if required.—Address, S. H. Mr. Puddy's, Post-office, Essex-street, N.

TO PLUMBERS AND BUILDERS.

WANTED, by a Young Man, a SITUATION as PLUMBER, or otherwise make himself useful. Good reference.—Address, H. W. 15, Broadley-street, Blandford-square, N.W.

WANTED, by a Young Man, a stanch teetotaller, a constant SITUATION as a good PLUMBER and GASFITTER, GLAZIER, &c. First-class references from late employer. — Address, J. WILTON, 3, Leicester-street, Cleveland-square, Paddington.

TO OWNERS OF HOUSE PROPERTY OR ON A GENTLEMAN'S ESTATE.

WANTED, a PERMANENCY, by a Young Man, who is thoroughly acquainted with the carpentry, painting, and general repairs of every description of house property, good writer, and can keep accounts.—Address, L. M. 14, Cadogan-street, Chelsea.

TO CONTRACTORS, BUILDERS, AND OTHERS.

WANTED, by the Advertiser, a SITUATION as STORE or TIME KEEPER, or any place of trust. Good reference can be given.—Address, R. A. 6, Crozier-street, Stangate, Lambeth.

WANTED, by the Advertiser, a MANAGER'S or General FOREMAN'S SITUATION. Well acquainted with the rudiments of the building department.—Address, T. M. Office of "The Builder."

TO ARCHITECTS AND ENGINEERS.

WANTED, by a thoroughly Practical Man, a SITUATION as CLERK of WORKS. Has had fifteen years' experience. First-class testimonials.—Address, L. A. care of Mr. Kerby, 37, Lambeth-walk.

WANTED, an ENGAGEMENT, by an ASSISTANT, aged 28, who is a rapid perspective and general draughtsman, writes well, and is quick at calculations.—Address, C. T. Office of "The Builder."

TO LIME, CEMENT, AND BRICK MERCHANTS.

THE Advertiser, who for the last seven years has held a responsible situation as WHARF and GENERAL CLERK in the above business, wishes for a similar ENGAGEMENT, or as Traveller. Salary moderate.—Address, G. C. No. 13, St. Paul's Crescent, St. Paul's-road, Camden Town.

TO CIVIL ENGINEERS, SURVEYORS, &c.

THE Advertiser, aged 24, is desirous of a SITUATION as ASSISTANT or DRAUGHTSMAN. Has a thorough acquaintance with all ordinary and engineering surveying, levelling, &c. and is a good and expeditious draughtsman. No objection to the country or to going abroad.—Address, C. E. S. 34, Grafton-street East, Tottenham-court-road, W.C.

TO BUILDERS AND LAND PROPRIETORS.

THE Advertiser, aged 27, who has for the last five years been accustomed to superintend works, would be glad to meet with an ENGAGEMENT as SUPERINTENDENT or AGENT. Can prepare drawings, specifications, and quantities, set out and measure work, and take levels. Excellent testimonials. References and security if required.—Address, G. S. A. Mr. Jinking's, Broad-street, Folkestone, Kent.